DOCUMENT RESUME

ED 113 167 SE 019 677

AUTHOR White, Ruth M.
TITLE A Process Approach to Learning Arithmetic "First Year."
INSTITUTION Allegheny County Schools, Pittsburgh, Pa. Exceptional Children's Program.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE 73
NOTE 126p.

EDRS PRICE MF-$0.76 HC-$6.97 Plus Postage
DESCRIPTORS Arithmetic; Basic Skills; Curriculum; Curriculum Guides; *Elementary School Mathematics; Grade 1; *Learning Activities; *Low Achievers; Mathematics Education; *Number Concepts; Primary Education; *Special Education; Worksheets
IDENTIFIERS Elementary Secondary Education Act Title III; ESEA Title III

ABSTRACT

This curriculum guide was developed for low achievers and students needing special programs in first-grade mathematics. Modeled after the "Science--A Process Approach" curriculum, the program consists of an integrated series of learning activities. Master worksheets for recommended activities are included in the guide. The curriculum is divided into ten units. The first unit deals with the concept of numerosity and with the first three (whole) numbers. Subsequent units each deal with a single whole number. Activities involve printing the numeral as well as associating the numeral with appropriate sets. A list of objectives and pre- and post-tests are provided for each unit. (SD)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED113167

SE

A PROCESS APPROACH TO LEARNING ARITHMETIC

"FIRST YEAR"

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY
Ruth M. White
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER

SE019 671

EXCEPTIONAL CHILDREN'S PROGRAM

ALLEGHENY INTERMEDIATE UNIT

E 2

A PROCESS APPROACH TO LEARNING ARITHMETIC

FIRST YEAR

by Ruth M. White, Project Director

ESEA TITLE III

Allegheny Intermediate Unit
Two Allegheny Center
Pittsburgh, Pennsylvania 15212

Copyright 1973© Ruth M. White

All Rights Reserved

INTRODUCTION

The following materials and activities for teaching arithmetic to first-level special education students, have been developed as part of a pilot test program under an ESEA Title III grant.

This particular set of activities is based on a "process approach" type of learning which moves from the very simple to the complex learning areas. The idea for a process approach type arithmetic program grew out of working with the "Science--A Process Approach" curriculum which we have adapted for use with special education. The Allegheny Intermediate Unit Exceptional Children's Program has added this science program to their curriculum; since the students' achievements in this area have been most gratifying, the process approach teaching is being extended to the area of arithmetic.

There have been many kinds of arithmetic programs developed for use with the slow learner and the special education student; some of them make use of the abacus, or of colored rods; some of them use workbooks or endow the numerals with personalities by giving them arms, legs and faces. In this test program, we shall use numerals which are black, and which have no embellishments designed to give them cartoon-like qualities. The rationale behind this idea stems from the fact that in higher levels of arithmetic, the numerals are actually printed in black without any appendages attached.

The use of repetition and reinforcement by use of varied activities will be most evident during the use of the process approach. There is a distinct avoidance of counting by rote; rather, the students will be asked to attach meaning to the symbols 1, 2, 3, etc., by associating those symbols with a corresponding number of objects.

F. A. Sharp has stated in his book, These Kids Don't Count: "A child must be able to speak aloud about what he is doing before he is able to speak to himself about the same activity." He goes on to say that he (the child) should then repeat the statement silently, followed by abbreviating "his inner speech, which then becomes thinking." The activities in this guide follow the foregoing precept, and it will be noted that students are encouraged to verbalize their performances.

A pre-test embodying the major objectives for the entire year's work should be given to each student individually before any instruction in arithmetic begins. There is also a pre-test for each Unit, and a post-test to be used for comparison.

Ruth M. White, Project Director
ESEA Title III - A Process Approach to Learning

September, 1973

PRE-TEST

LEVEL 1 - (COVERS FIRST YEAR'S PROGRAM)

TASKS 1 through 13: (Place a checkmark on the answer sheet beside each incorrect response)

Have available a set of numerals from 0 through 12; use black numerals on oaktag cards. Show the cards in the following order:

5 - 7 - 1 - 3 - 6 - 9 - 4 - 0 - 12 - 2 - 10 - 8 - 11

Tell the student to read each number as it is shown.

TASK 14: Next, show the student a group of 12 cubes. Say: "Put 4 of these cubes in my hand".

TASK 15: Show the numeral 3 and say: "Pick up this many blocks and put them in my hand".

TASKS 16 through 28: Give the student a sheet of lined paper and a pencil. Say, "Write the number I tell you". Call off the numerals in the following order:

4 - 6 - 2 - 12 - 7 - 1 - 0 - 3 - 5 - 10 -

8 - 9 - 11

PRE-TEST FOR UNIT I

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

Recognition of Numerals 1, 2 and 3

Have available a set of 3 cards with numerals 1, 2 and 3 written on them, 3 books and two pieces of paper for each student.

TASKS 1, 2 and 3 - Show the student the cards, one at a time, and in random order. Say, "Tell me the name of this numeral." Give credit for each correct answer.

TASKS 4, 5 and 6 - Give the student a piece of paper with 3 lines drawn on it. Say, "Write the numeral 1 on this line." Now write 2 on this line." Point to the last line and say, "Write 3 on this line." Give credit for each correct answer.

TASKS 7, 8 and 9 - Show the student 1 book and ask, "How many books am I holding?" Pick up three books and say, "How many books am I holding now?" Then, pick up two books and ask, "How many books am I holding?" Give credit for each correct answer.

TASK 10 - Show the student 1 book and say, "Write the number which shows how many books I am holding." Give credit if the student writes a "1" on the lined paper.

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT I

OBJECTIVES

1. To state the name of the numerals 1, 2 and 3 when they are presented in random order.

2. To write the numerical symbols 1, 2 and 3 when they are stated in order.

3. To associate the numerical symbols 1, 2 and 3 with a corresponding number of objects by stating the numeral.

4. To associate the numerical symbols 1, 2 and 3 with a corresponding number of objects by writing the numeral.

VOCABULARY:

one two three how many

INSTRUCTIONAL PROCEDURE

UNIT I

ACTIVITY I

Have an assortment of blocks or other objects on a table in front of the room. There should be more objects than there are students.

Call one child to come up and say: "Take one block back to your seat." Follow the same procedure with each member of the class. Ask several children how many blocks they have. Emphasize the word one and have all the children verbalize the word "one" as much as possible.

Tell the students that they have been saying they took one block; now they are going to write how many blocks they took.

Ask one child to bring his block to the front of the room, and say, "How many blocks do you have?" "Write the number 1 on the board." If necessary, guide his hand, making certain he writes the symbol from top to bottom, not the reverse. There should be a horizontal line drawn on the board, so the child may write the numeral on the line. Give each student an opportunity to write the numeral "1" after being asked, "How many blocks do you have?" This lesson may be continued using other directions; such as, "Bring me 1 crayon", or "Give me 1 piece of paper." Follow each activity by asking that the number "1" be written on the board by the student.

ACTIVITY 2

As a review of the previous lesson, give each student a piece of paper which has been divided into 12 - 2-1/2 inch blocks (See Sample #1). The first line has a row of 1's which the student should trace over. The next 2 lines are for practice in writing the 1's. Watch carefully to make certain each student is printing the 1's downward to the base line. Give help where necessary.

Next, show a card with the numeral "1" on it. Ask someone to state what numeral is on the card. Give each student a black crayon and a 5 x 5 inch cardboard square with a horizontal line drawn on it. The card should be marked with the student's name on the reverse side. Hold up 1 book and say, "Write the number which shows how many books I am holding." Give assistance where necessary, but each child should attempt writing the number "1" on his card. Collect the cards, and retain them for future use. Eventually, each student will have a set of cards on which he has written the numerals from 0 through 12.

ACTIVITY 2 (Continued)

Group 6 or 8 paper cups in front of the room. Hold up a card with the numeral "1" on it, and ask a student to give you that many paper cups. Ask several other students to do the same until it is apparent that the class comprehends the meaning of the symbol "1".

ACTIVITY 3

Use the same techniques for teaching the numeral 2 as used for 1. This is a more difficult symbol for beginners to write; therefore, it may be necessary to use a template of the numeral in order to assist with the fine motor movement necessary to reproduce it. (See Sample #2).

Have the students verbalize the word "two" as much as possible when they are performing the activities. After the concept of "2" has been reviewed, give instructions which include "1" also. For example, alternate requests for two items with requests for one item.

Prepare a set of 5 x 5 oaktag squares--1 for each student, as in the earlier lesson. Mark with student's name. Have each child write the numeral "2" on the card. Have extra cards available to use in case of error. Give help where necessary.

ACTIVITY 4

Give each member of the class a black crayon and a dittoed sheet patterned after Sample 3. A larger-sized duplicate of the student sheets should be placed in front of the room where the class may see it. This may be used by the teacher in order to reinforce directions, if necessary.

Point to the first block on the large copy of the worksheet and ask, "How many balloons are in this block?" Now look at your paper and point to the same block. Put a "1" on that block down in the corner. (Demonstrate).

Ask the class if all the blocks have one balloon. Tell them, "Find the ones with 1 balloon and put the number "1" on those blocks."

Check students' papers and give assistance where necessary.

Point to the next block on the teacher's copy and say, "How many balloons are in this block?" Then, "Put the number 2 in that block." Ask, "Do any of the other blocks have 2 balloons? Put a 2 in each block which has 2 balloons."

The lesson may be extended, if necessary, by having students who are experiencing difficulty to come up to the large copy and point to the blocks and state the number of balloons contained in them.

The rest of the class may color the balloons, if desired.

ACTIVITY 5

The concept of "3" should be introduced by having one balloon blown up and placed in the front of the room. Ask the students how many balloons there are. Have a number of students pick up the balloon and say, "One balloon."

Place another balloon beside the first one and say, "Now how many balloons?" Follow the same procedure as before, having students pick up one of the balloons and say, "One balloon", then pick up the other and say, "Two balloons."

Now, add another balloon and say, "Who can tell me how many balloons we have now?" Have students come up and count the balloons--"1, 2, 3."

Continue by using other objects easily handled by the students and readily seen by the entire class; such as, paper plates, large blocks, paper cups, etc. Place 9 such objects in front of the room, and have students come up and take 3 from the pile. Vary this activity by having them take 1, 2 or 3 at the teacher's direction. Each time, have the student verbalize the number he has taken.

Give each child a set of 3 objects (popsicle sticks, dowel rods, or any other easily handled material). Ask them to count aloud to see how many they have. Ask students individually to count "1, 2, 3" as they pick up each object.

Ask if anyone can show how to write "3". Perhaps one of the students will be able to do this. If not, have each member of the class come to the board and write "3" with the teacher's assistance. Give each student a template (See Sample #4)and practice writing "3" with a black crayon or primary pencil. Use paper which has been blocked off into squares the size of the template.

Students should be given the opportunity to practice writing all the numerals from 1 through 3, using the templates and also without the templates. Have the student write the numeral "3" on their oaktag card.

Additional Optional Activities:

1. Three boxes (shoe boxes or something similar) may be placed in the front of the room. Each box should contain some small items such as lollipops, or small plastic prizes similar to those found in vending machines. The boxes should be plainly numbered 1, 2 and 3. Permit each student to reach in the box for a prize after directing him to one of the three boxes. He must locate the correct box before being permitted to take a prize.

2. A set of flash cards with the numerals 1, 2 and 3 may be used to give practice in recognizing and saying the numerals correctly. Show the numerals and have the class locate the correct number of corresponding items.

Additional Optional Activities: (Continued)

3. Use a dittoed sheet similar to Sample #5 for reinforcing the understanding of numerals 1, 2 and 3. The block containing the objects corresponding to the correct number may be colored, X'd., or marked in whatever way the teacher prefers.

4. Use every opportunity during the class day to reinforce the recognition of 1, 2 and 3, when they are presented both verbally and written.

5. Plastic numbered "footsteps" are available commercially, or they may be constructed from cardboard. They are placed on the floor in numerical sequence, so students may step on them, and count as they step. At this point, no more than 3 "footsteps" should be used.

6. Shortly before students leave for the day, inflated balloons numbered 1, 2 and 3 (1 for each student) may be placed around the room. Let each child pick a numbered card (be sure there are matching cards for each balloon), and locate the proper matching balloon. Students may be permitted to take the balloons home or they may be kept for another day, if desired.

COMPETENCY MEASURE

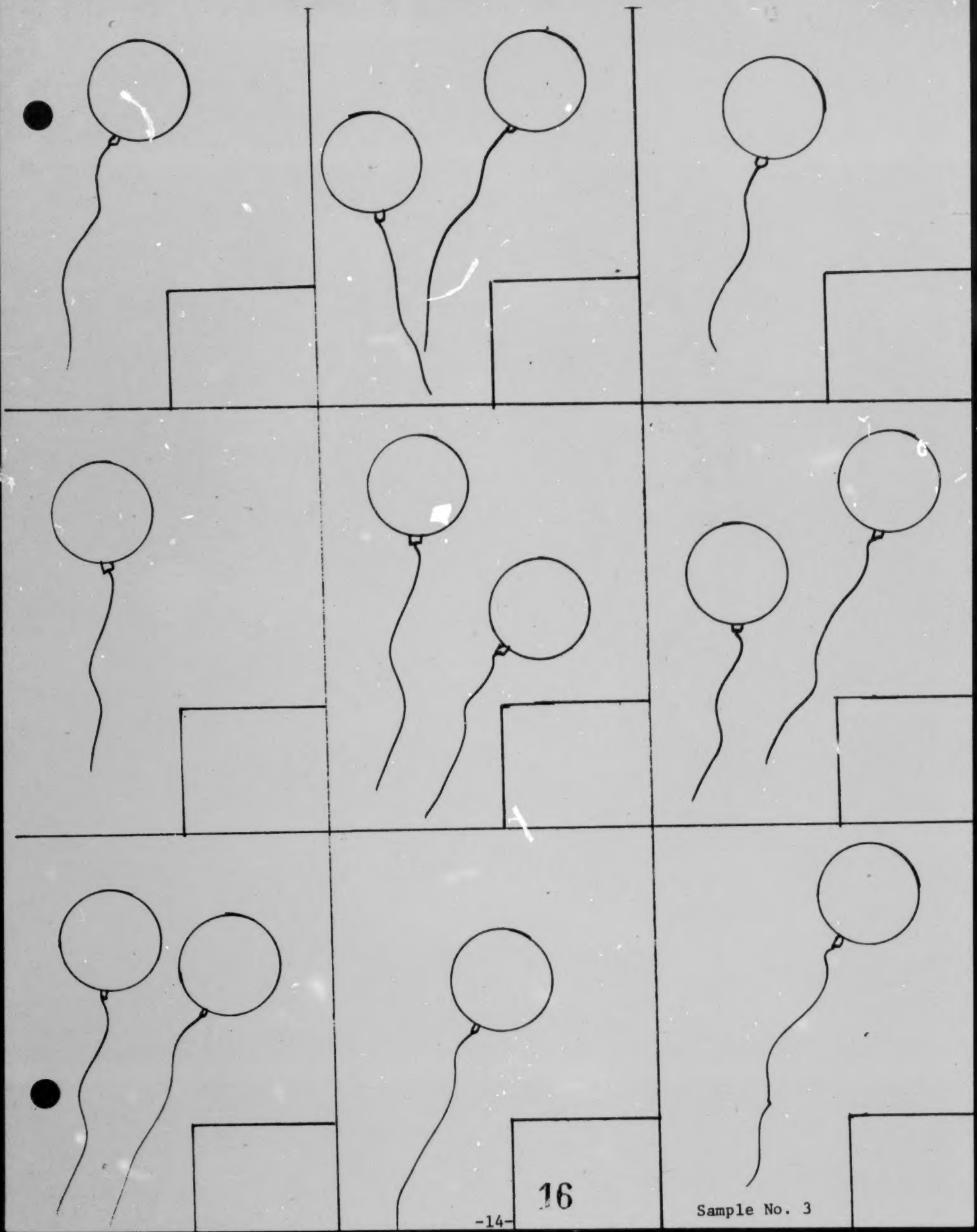
(To be administered individually)

Have ready a set of 3 cards with the numerals 1, 2 and 3 on them; also, a set of 3 pencils and sheets of paper (2 for each child) with 3 lines drawn across each one.

TASKS 1, 2 and 3	(Objective 1)	In random order, show the cards with the numerals, and ask the student to read them. Give credit for each one correctly named.
TASKS 4, 5 and 6	(Objective 2)	Give the student a piece of paper and say, "Write the numeral "1" on the first line." Then, "Write the numeral "3" on the next line." Finally, "Write the numeral "2" on the next line." Give credit for each one written correctly.
TASKS 7, 8 and 9	(Objective 3)	Show the student 1 pencil and ask, "How many pencils am I holding?" Do the same with 2 pencils and then 3 pencils. Give credit for each one answered correctly.
TASK 10	(Objective 4)	Give the student a piece of paper with one line drawn on it. Show him 2 pencils. Say, "Write the number which shows how many pencils I am holding." Give credit if he writes "2".

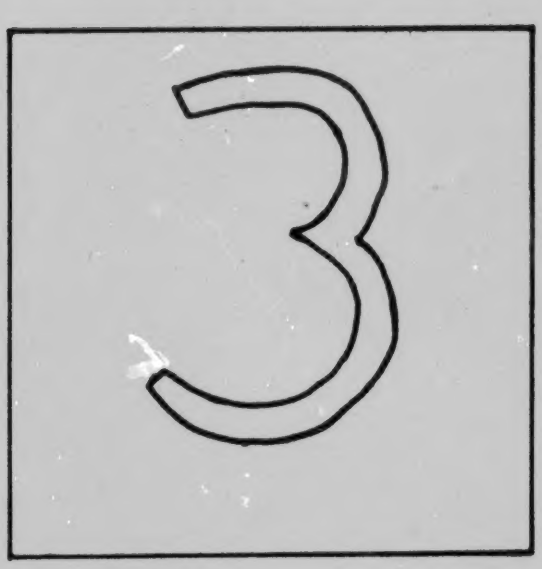
Sample No. 1

USE HEAVY OAKTAG OR CARDBOARD. CUT OUT CENTRAL PORTION OF NUMBER WITH CUTICAL SCISSORS OR RAZOR BLADE. STUDENT SHOULD BE GIVEN BLACK FELT MARKER TO USE WITH ALL TEMPLATES. THE NUMERALS 1, 2, 3, 4, 5 AND 7 MAY BE CUT FROM A PIECE OF HEAVY PAPER TO MAKE TEMPLATES.

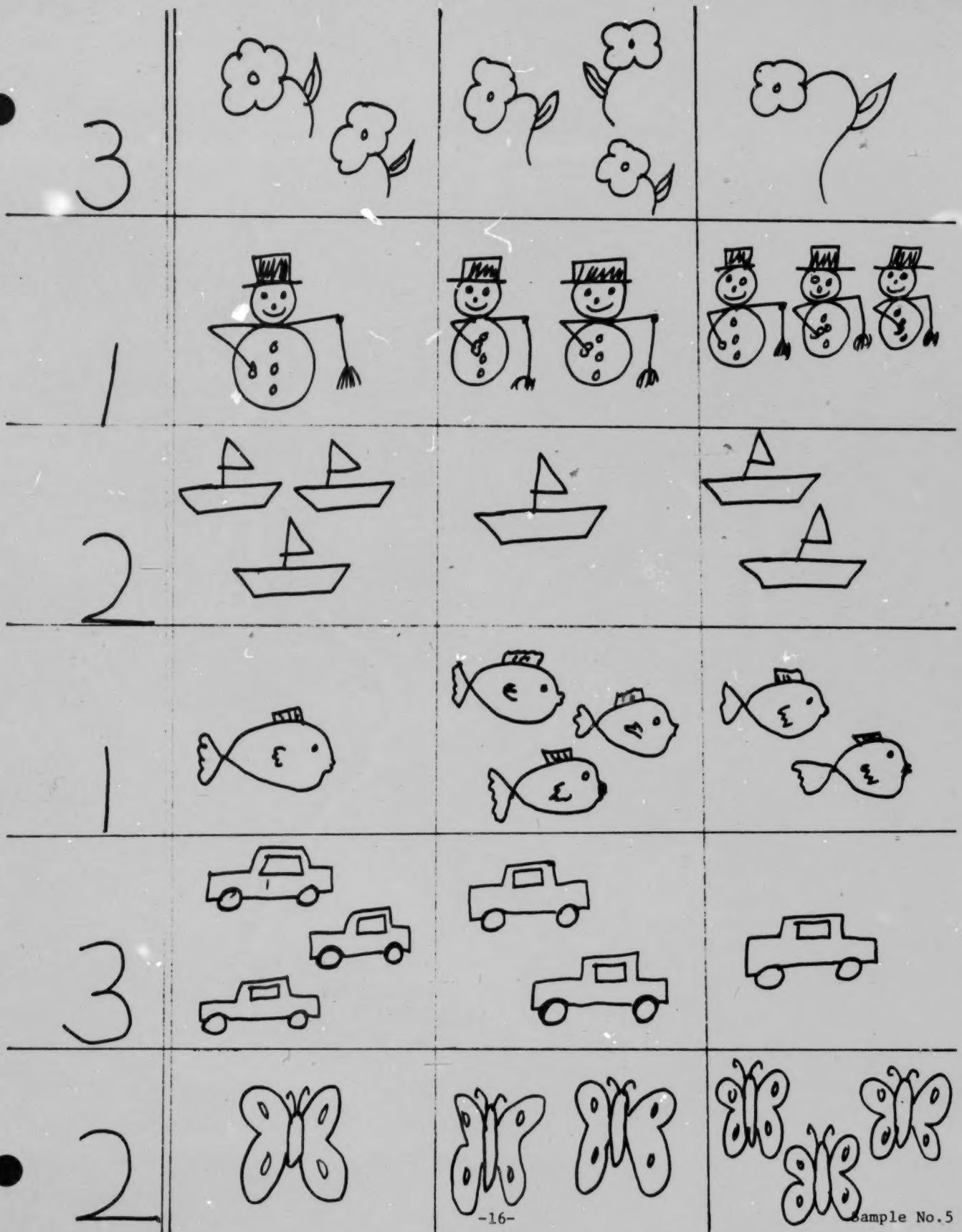


16

Sample No. 3



Sample No. 4



-16-

Sample No.5

PRE-TEST FOR UNIT II

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 4

TASK 1 - Show the student a card with a large 4 printed on it. Say: "What number is this?"

TASK 2 - Show the student a set of 10 crayons. Say: "Give me 4 crayons."

TASK 3 - Show the student 4 pencils. Ask: "How many pencils do I have? Count them."

TASK 4 - Give the student a piece of paper and a pencil. Say: "Write the number 4 on this paper."

TASK 5 - Arrange a set of cards with numerals from 1 to 4 (in random order) in front of the student. Say: "Point to the 4."

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT II

OBJECTIVES

1. To state the name of the numeral "4" when it is shown on a flashcard.
2. To associate the number 4 with four objects by stating the word orally.
3. To recognize the numeral 4 when it appears with numerals 1, 2, 3 and 4 in any order.
4. To write the numeral 4.
5. To count, in order, from 1 through 4.

VOCABULARY:

four (also review one, two, three)

INSTRUCTIONAL PROCEDURE

UNIT II

ACTIVITY 1

Place a row of flashcards with the numerals 1, 2 and 3 on them on the chalkboard ledge, with the blank side toward the students. Have enough cards so each child will be able to select one and take it back to his seat. Each student should pick a card at random, show it to the class and state its name. Have one card ready with a 4 on it, so the last student gets this one. Perhaps he will know what it is; if not, ask for someone else to tell the class the number.

Arrange sets of books or blocks on a table in front of the room. Have one set of 4, another set of 3, another of 2 and one set of 1. These should be arranged in random order. Ask someone to bring up their numbered card and place it on the correct set of objects. Continue until each child has placed his card on the correct set of objects. Remove each card as it is placed on the objects so the children cannot "copy."

ACTIVITY 2

Randomly arrange cards with the numerals 1, 2, 3 and 4 in the front of the room. Ask each student to pick a number as directed and repeat the name of the number by saying: "This is a 4."

Give each student a ditto to practice writing "4's." See Sample #1.

Make a template for each child to assist in writing 4's. Give as much practice as necessary.

ACTIVITY 3

Distribute ditto (See Sample #2) for practice in writing the numerals 1, 2, 3 and 4. The lines should be spaced so they correspond to the slots in the folder which holds the paper. See Sample #6 for instructions for making Paper Holder.

Prepare a large cardboard circle with 1, 2, 3 and 4 printed around the rim (See Sample #3). Cut a pointer from oaktag, color it black and attach it to the plate with a brad. Begin by spinning the pointer and call upon someone to name the numeral on which the pointer stops. If he names it correctly, he may spin the pointer and call upon someone else. Continue as long as interest lasts.

ACTIVITY 3 (Continued)

In addition to naming the number, ask the student to write the number on the board.

If desired, have available small wrapped candies or a supply of cereal like Fruit Loops (or perhaps Animal Crackers) so each student may take as many items as the number he has written.

ACTIVITY 4

Place groups of objects on the flannel board. They should be easily recognized objects such as flowers, cars, airplanes, etc. Put groups of 1, 2, 3 and 4 objects on the board. Point to a group and ask how many flowers (or cars) are in the group. Ask someone to count them. Continue asking for the correct number until each student has had an opportunity to count a group.

Prepare a ditto (See Sample #4 as a suggestion) which carries out the same idea as that used on the flannel board. Say: "Find the block with 3 flowers. Color them blue." Then, "Write the number 3 in the block." Continue with the rest of the groups, having the class color and then write the correct number. This should be done as a class exercise and students should wait for each instruction before proceeding.

ACTIVITY 5

Place a group of ten objects in front of the room. Ask someone to give you 4 of the objects. Hold up a card with a 4 and ask for "this many" objects. Review the numerals 1, 2 and 3 in the same fashion.

Place flannel numerals 1, 2, 3 and 4 randomly on the flannel board. Have the class arrange them in order on the board, and verbalize as they do so.

Practice writing the numerals 1, 2, 3 and 4, in order, on a piece of paper inserted in the paper holder.

ACTIVITY 6

Use sets of flannel-backed objects (See Sample #5) to be used in telling the following story. As each item is discussed, have students arrange the correct number of objects on the flannel board in order to make a picture. Tell a story similar to the following:

"Here is a picture of a barn that belongs to Farmer Brown. (Barn should be on one side of flannel board). Let's see what kind of animals he has on his farm. Here are some pigs--two of them belong to Farmer Brown. Put two in the yard. Here are some cows. Give one to Farmer Brown." Proceed in the same fashion, using from 1 to 4 animals (or trees) and have different students pick out the proper number and place them on the flannel board. Review by asking, "How many pigs does Farmer Brown have--let's count them."

REVIEW

Hold up four objects and ask class how many there are. Tell the class to write a page of 1's, then 2's, 3's and 4's, using the paper guide.

Have each student make his own individual 5x5 card with the numeral "4" on it.

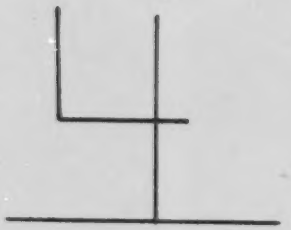
Continue with any activity which may be necessary for reinforcement.

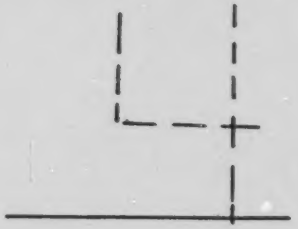
COMPETENCY MEASURE

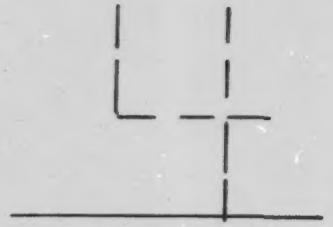
(To be administered individually)

The Numeral 4

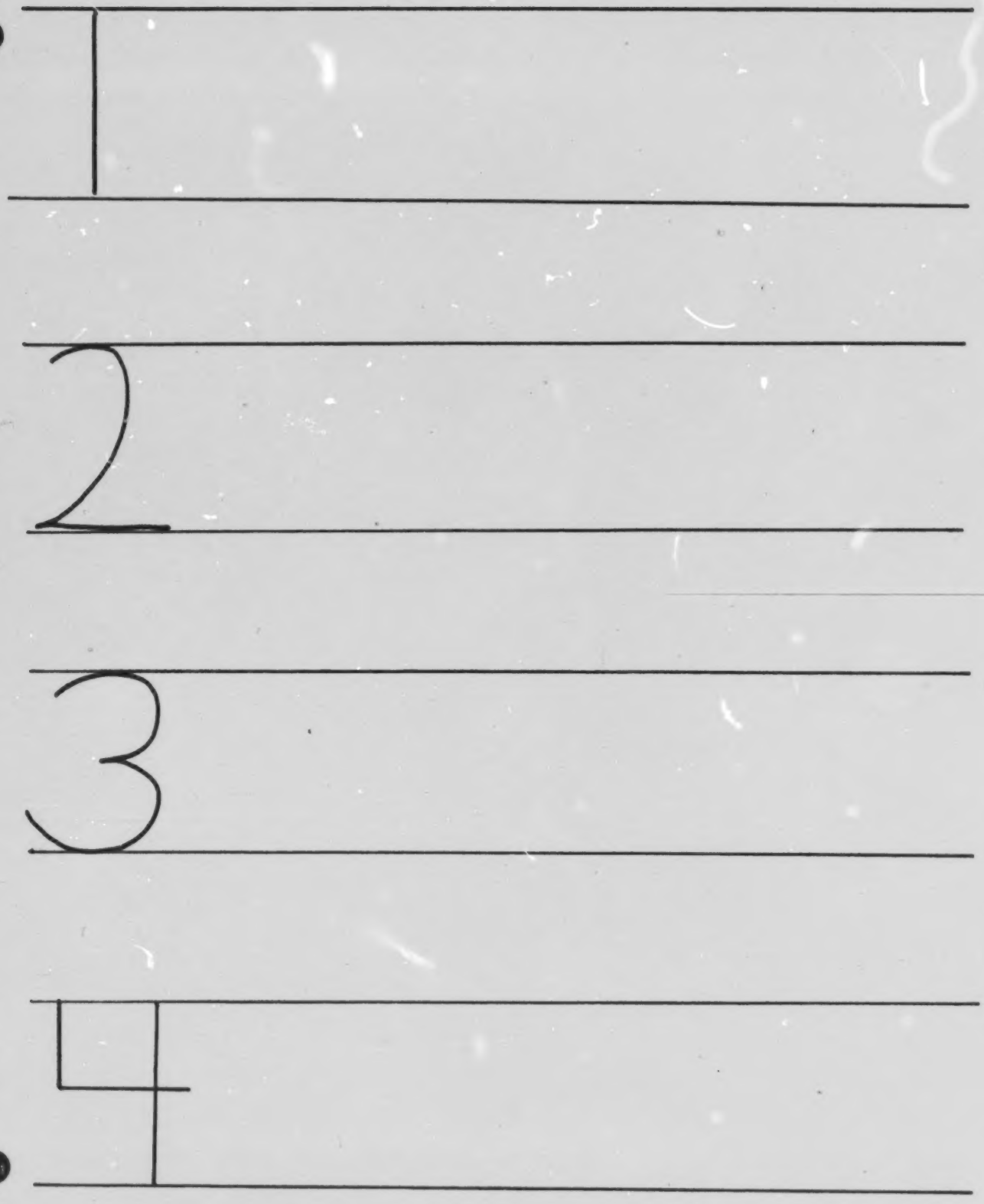
TASK 1	(Objective 1)	Show the student a card with the numeral "4" on it. Ask: "What is this number?"
TASK 2	(Objective 2)	Show the student four paper clips. Say: "Count the paper clips and tell me how many there are."
TASK 3	(Objective 3)	Randomly display four flashcards with the numerals 1, 2, 3 and 4 on them. Say: "Show me the 4."
TASK 4	(Objective 4)	Give the student a piece of paper with two parallel lines drawn about 1-1/2 inches apart. Say: "Make a 4 on this line" (point to bottom line).
TASKS 5 and 6	(Objective 5)	Show the student a set of cards arranged in order from 1 through 4. Say: "Count as I point to the numbers." Remove the cards and say: "Count to 4--begin with 1."



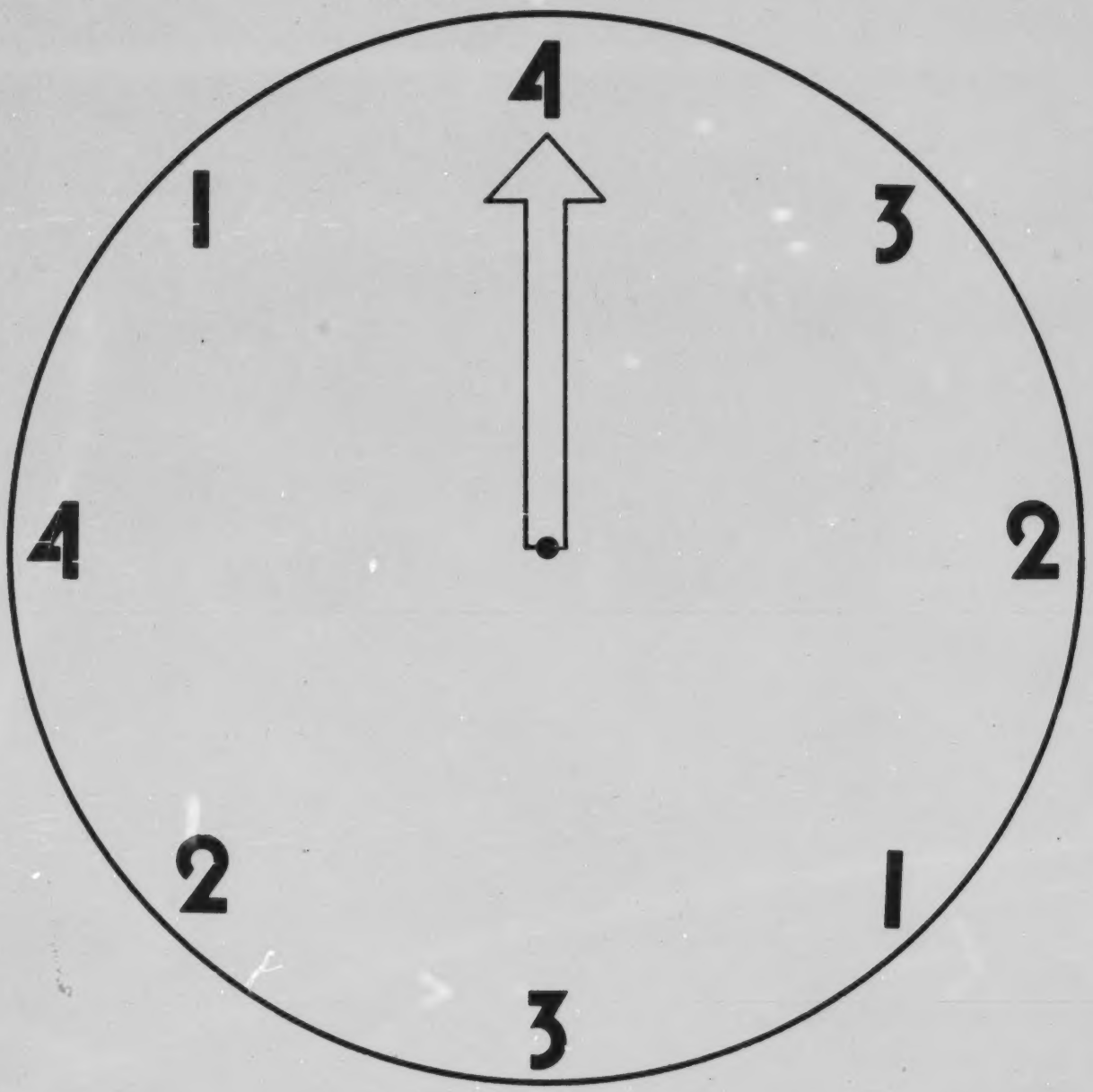


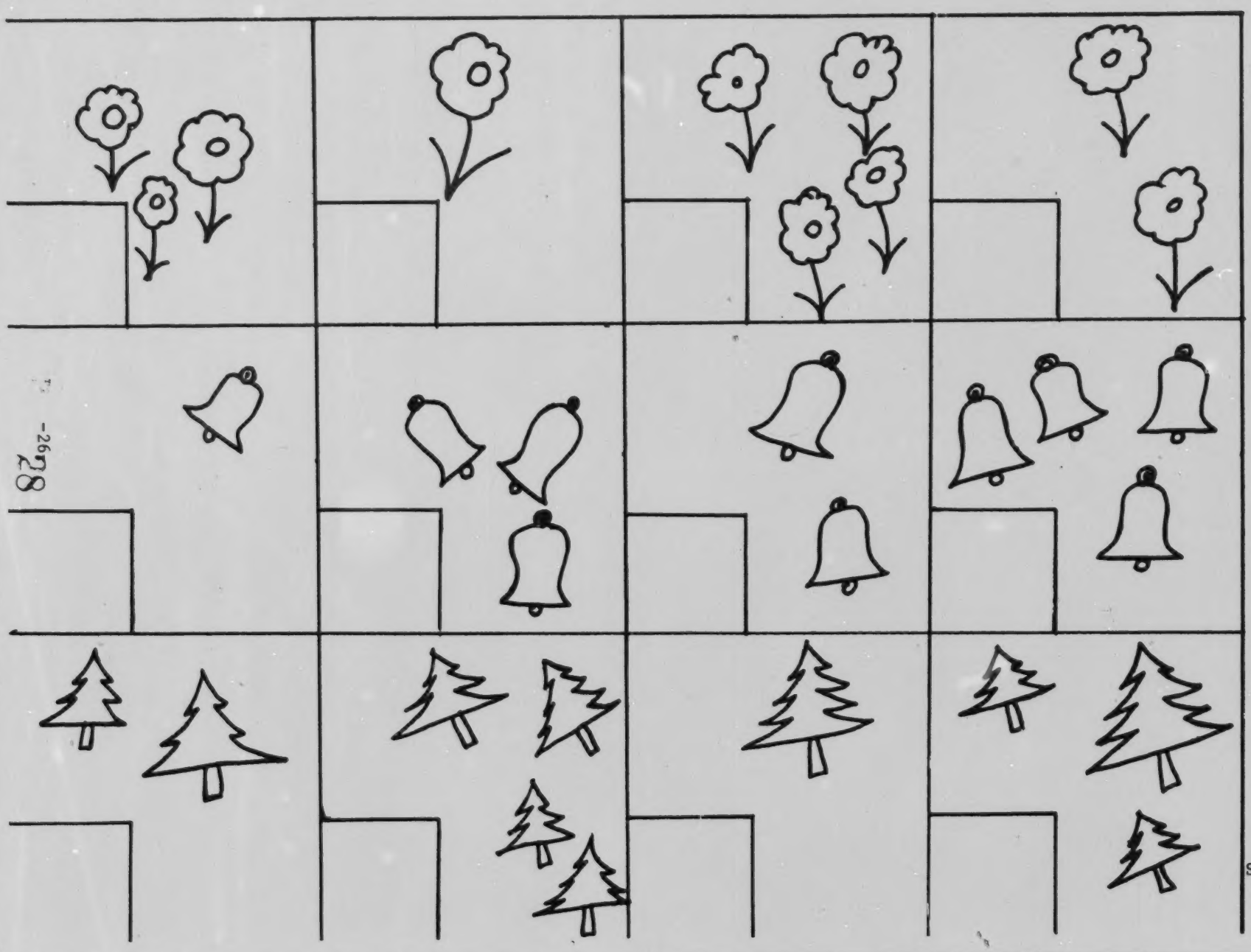


Sample No. 1

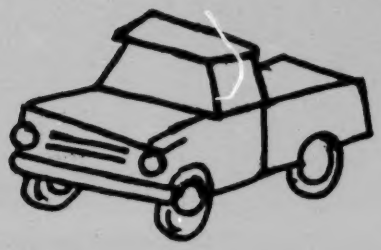


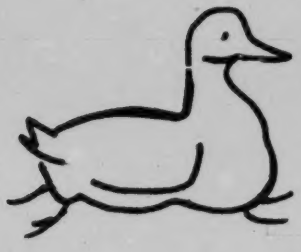
Sample No. 2

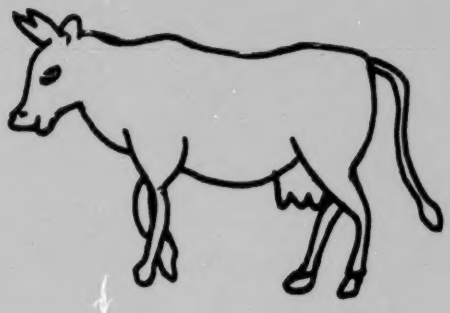

4
1
3
4
2
2
1
3



Sample 4.







COPY THE ANIMALS AND OTHER OBJECTS ON COLORED CONSTRUCTION PAPER. GLUE TO A PIECE OF FELT AND CUT OUT. MAKE ONE BARN AND 12 OF EACH OF THE OTHER ITEMS.

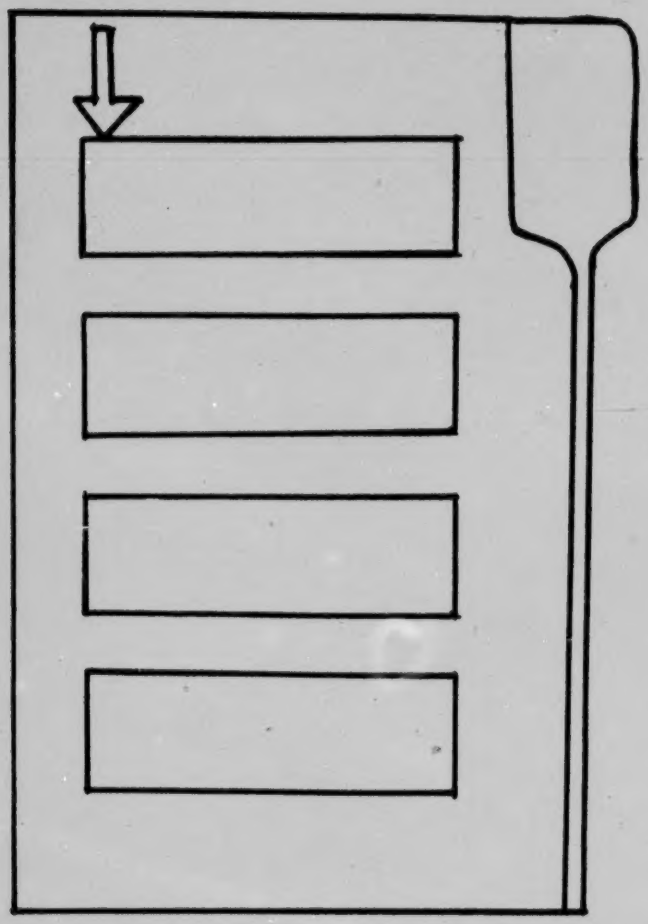
Sample No. 5

MAKE A "PAPER HOLDER" FOR EACH STUDENT IN ORDER TO MAINTAIN A STRAIGHT WRITING LINE. USE A MANILA FILE FOLDER (LETTER SIZE) AND CUT SLOTS ACROSS THE WIDTH OF IT. SLOTS MAY VARY IN SIZE. FOUR OPENINGS, 7 INCHES LONG, 1-1/2 INCHES WIDE CAN BE USED. LEAVE AN INCH BETWEEN EACH SLOT.

IF DESIRED, A PIECE OF THIN SPONGE RUBBER MAY BE GLUED UNDER THE FRONT COVER BEFORE THE SLOTS ARE CUT. THIS WILL REST AGAINST THE PAPER AND KEEP IT FROM SLIPPING.

DRAW A RED ARROW AT THE TOP LEFT CORNER TO REMIND THE STUDENTS TO START AT THE LEFT SIDE WHEN THEY WRITE.

A PIECE OF 8-1/2 x 11 INCH PAPER MAY NOW BE SLIPPED INSIDE THE FOLDER AND THE SLOTS WILL PROVIDE GUIDES FOR WRITING. THE PAPER HOLDER WILL LOOK LIKE THIS:



PRE-TEST FOR UNIT III

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 5

TASK 1 - Show the student a card with a large 5 printed on it. Say: "What number is this?"

TASK 2 - Place 10 cubes in front of the student. Say: "Give me 5 of these cubes."

TASK 3 - Place 5 crayons in front of the student. Say: "Count the crayons and tell me how many there are."

TASK 4 - Give the student a piece of paper and pencil and say: "Write the number 5."

TASK 5 - Arrange a set of cards from 1 through 5 so they are not in order. Say: "Show me a 5."

TASK 6 - Group 10 pencils on the table. Show the student a card with a 5 on it and say: "Give me this many pencils."

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT III

OBJECTIVES

1. To state the numeral "5" when it is shown on a flashcard.

2. To associate the number 5 with five objects by stating the word orally.

3. To recognize the numeral 5 when it appears with numerals 1, 2, 3, 4 and 5 in any order.

4. To write the numeral 5.

5. To count, in order, from 1 through 5.

VOCABULARY:

five

INSTRUCTIONAL PROCEDURE

UNIT III

ACTIVITY 1

Have two students come to the front of the room. Ask the class how many children are standing there. Say: "How would we write the number to show how many students are standing in front of the room?" Ask someone to write the number on the board.

Continue this procedure with 1, 3 and 4 children.

Have 5 children come to the front of the room (or if this depletes the class too much, use 5 paper plates). Ask how many there are--touch each child or object as the class counts. Some may know "5", others may not.

The students should say "5", each time they perform some task involving this numeral.

ACTIVITY 2

This activity should be devoted to practice in writing the numeral 5. Show the class 5 objects (paper plates are big enough to be seen easily). Ask the class to count as you point to them. After each one, have someone write the numeral on the board. Someone may know how to make a 5; if so, let them put it on the board. Otherwise, show the class how a 5 is written. Begin like this: then continue with , and finally, 5. Put the "hat" on the 5 last.

Pass out dittos with partially completed 5's, and have the class complete them (See Sample #1).

Additional practice in making 5's may be given by using Sample #2, with lines which correspond to the slots on the paper holders.

ACTIVITY 3

As a review of 1, 2, 3, 4 and 5, prepare a moveable wheel as in Sample #3. Give students turns at spinning the outer wheel to determine their number. They should say the number of objects which are on the section beneath the arrow, and turn the smaller wheel until the correct number is placed beneath the objects.

ACTIVITY 3 (Continued)

They should then write the number on the board while the remainder of the class writes the same number on paper inserted in their paper holder.

Continue as long as interest is sustained.

ACTIVITY 4

Prepare a ditto similar to Sample #4. Explain to the class that they are to color the blocks the way you tell them. Give each student a set of crayons and say: "Pick up the red crayon; find a square with a 5 in it. Color that square red."

Tell the class to color red all the blocks with a 5 in them. Continue, using a different color with each number. If the blocks are too small for the coordination problems of the class, make the blocks larger or use a ditto similar to Sample #5 which fits the slots in the paper holder.

ACTIVITY 5

At this point, most of the class will probably be able to count, in order, from 1 through 5. However, an exercise to reinforce this skill should be given.

Prepare a set of numbers from 1 through 5 for each student. Ask the class to put them in order. Give individual assistance where required. Vary the activity by asking the class to find a "2" and place it on the desk in front of them. Say: "What number comes next?" Proceed by asking them to place a 4 in front of them and then the number that comes after that. Many students are unable to count properly unless they start at "1" and continue from there.

Extend the activity by giving each child a number. Have a stack of dowel rods, plastic counters, or other objects on the table. Each student is to take as many objects as the number on his card.

ACTIVITY 6

If additional practice is necessary for writing "5" (or any other numeral), use a transparent film over a page of numerals, and give the students the opportunity to trace. If transparent film is not available, use a piece of onionskin or tracing paper in the same way. Place the number sheet on a piece of heavy cardboard and lay the tracing paper on top. Fasten at sides with 2 brads. Copies of Sample #4 may be used for this purpose.

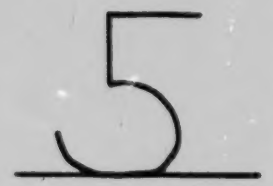
ACTIVITY 7

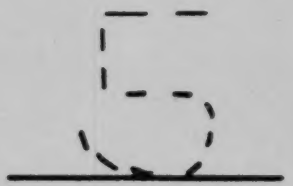
Give each student a piece of paper divided into sections. Ask how many fingers they have on their one hand (count, if necessary). Tell the class you are going to hold up some fingers, and they are to write down the number in the blocks on the paper. Proceed to do this in random order, assisting students where necessary.

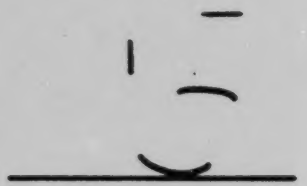
COMPETENCY MEASURE

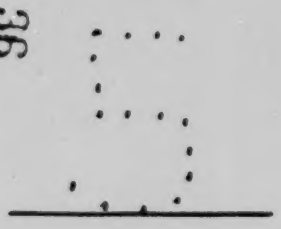
(To be administered individually)

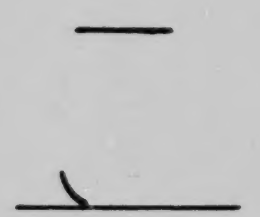
TASK 1 (Objective 1)	Show the student a card with the numeral "5" on it. Say: "Tell me what number this is."
TASK 2 (Objective 2)	Show the student 5 strips of paper and say: "Tell me how many pieces of paper I have." (He may count aloud, if he wishes)
TASK 3 (Objective 3)	Show the student a set of cards from 1 through 5 placed in random order. Say: "Show me the 5".
TASK 4 (Objective 4)	Give the student a piece of paper and a black crayon. Say: "Write the number 5". (Do not let him see the card with a 5 on it while he is performing this task.)
TASK 5 (Objective 5)	Give the student 5 cubes and say: "Count out loud and tell me how many cubes there are".







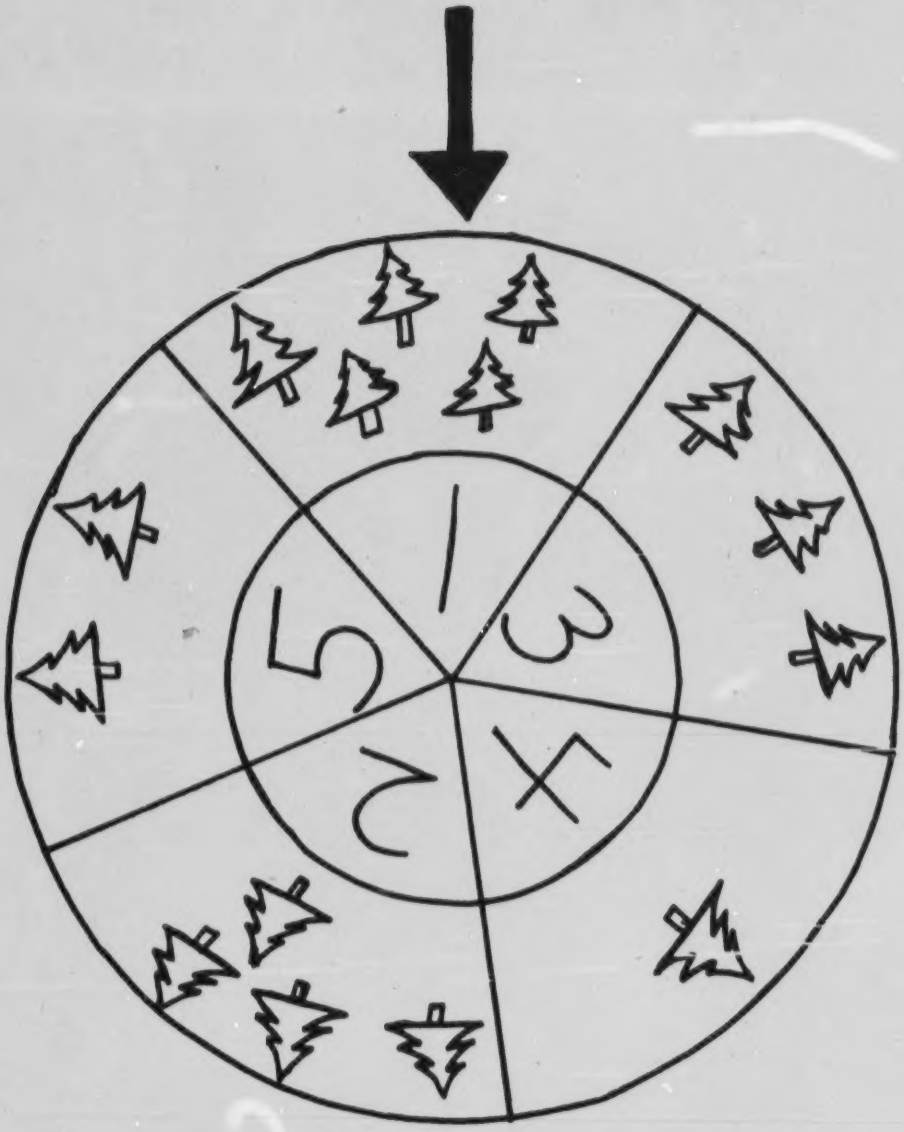




Sample No. 1

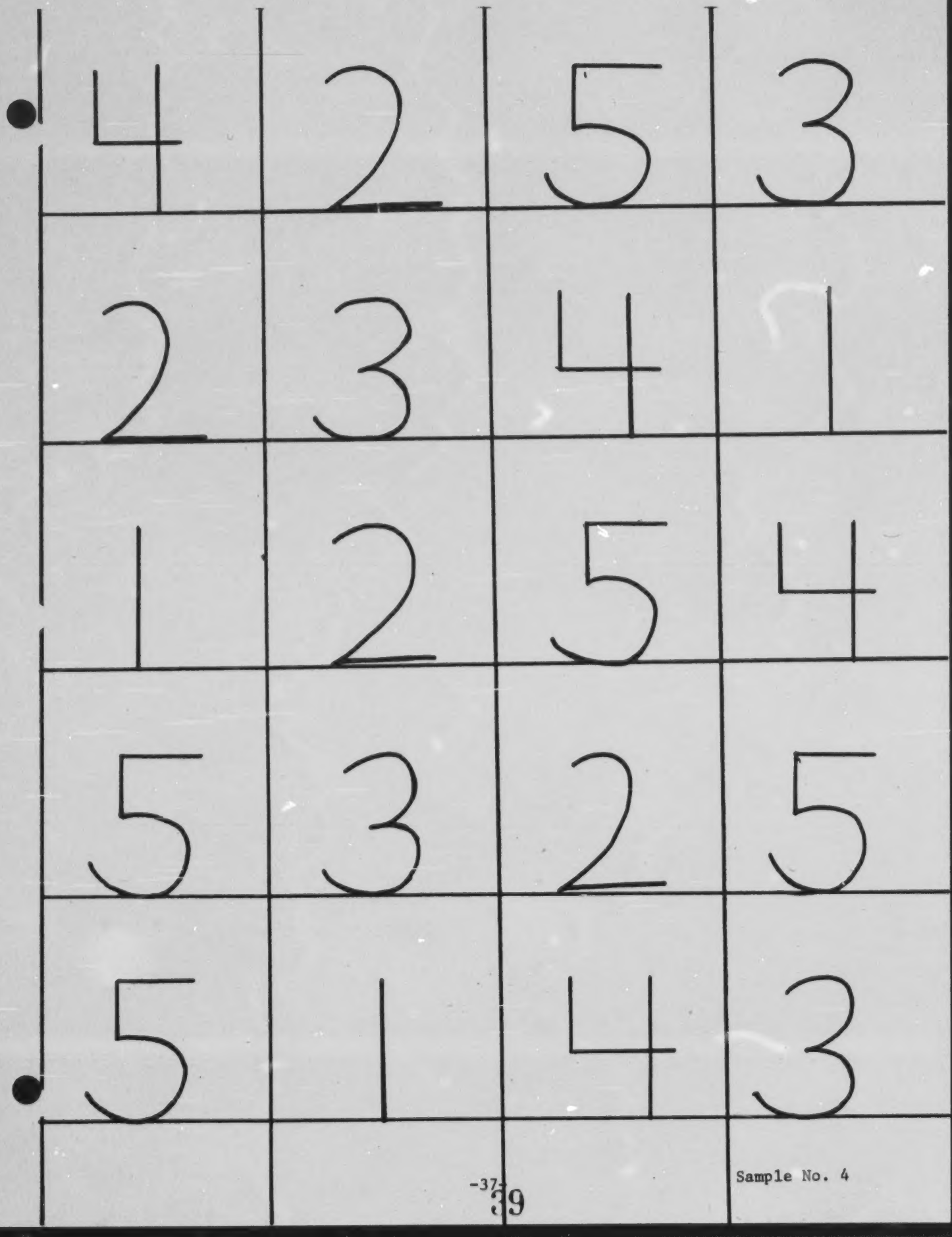
55

Sample No. 2

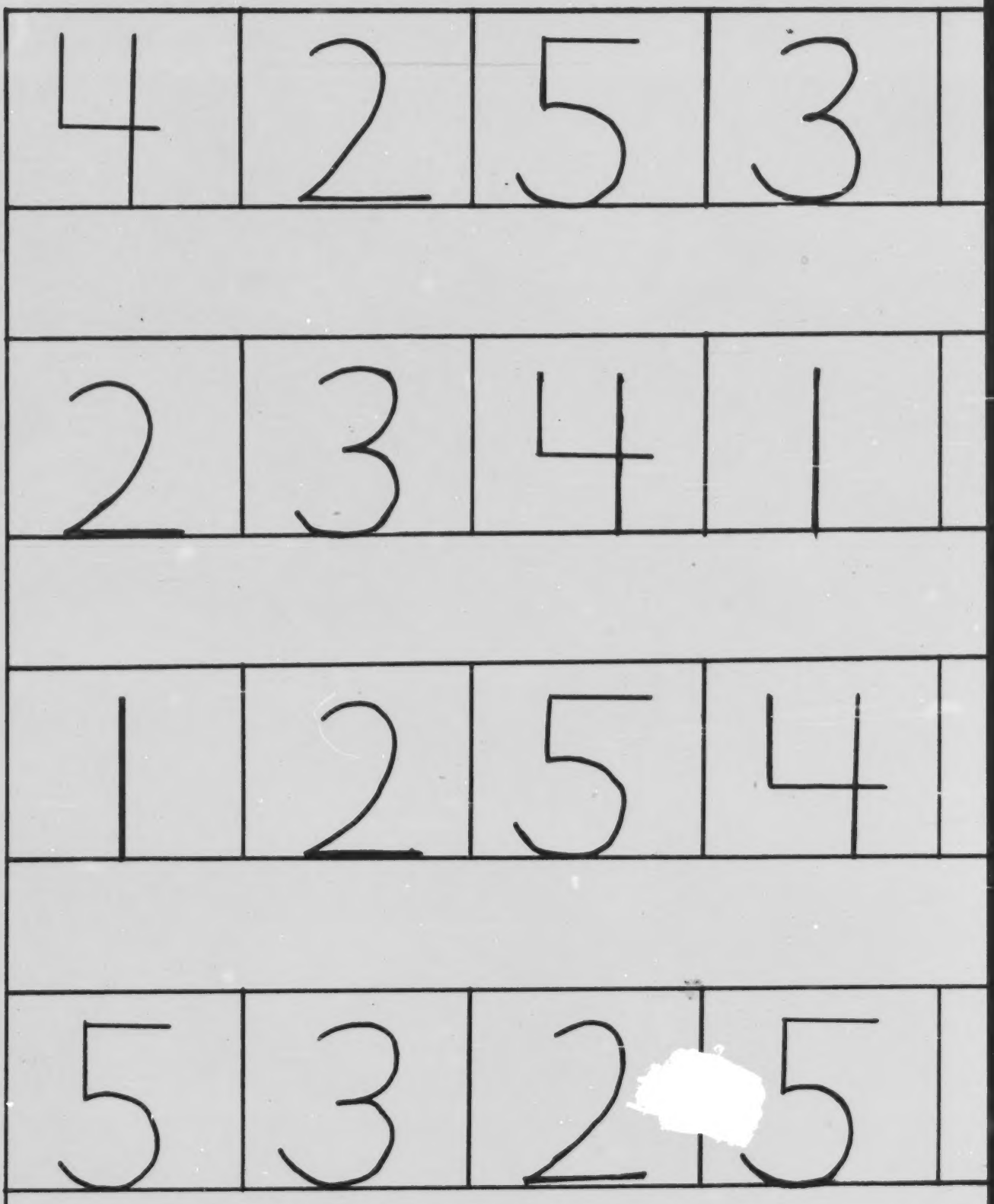


Outer circle should be about 13" in diameter. Inner circle is about 6" in diameter. Attach both circles with a brad to a piece of 18" x 24" oaktag. Drawings may be simple seasonal objects, attractively colored.

Sample No. 3



Sample No. 4



Sample No. 5

PRE-TEST FOR UNIT IV

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 6

TASK 1 Show the student a card with a large 6 printed on it. Ask: "What number is this?"

TASK 2 Show the student a penny. Ask: "What is this called?" (Give credit if he says: "A penny" or "a cent.")

TASK 3 Place 10 pennies in front of the student. Say, "Give me 6 of these pennies."

TASK 4 Place 6 cubes in front of the student. Say: "Count the cubes and tell me how many there are."

TASK 5 Give the student a piece of paper and a pencil. Say: "Write the number 6."

TASK 6 Arrange a set of cards from 1 through 6 so they are not in order. Say: "Show me a 6."

TASK 7 Place 10 pennies on the table. Show the student a card with the number 6 on it. Say: "Give me this number of pennies."

TASK 8 Show the student a flashcard with the numeral 5 on it. Ask: "What number comes next?"

TASK 9 Show the student a flashcard with the numeral 3 on it. Ask: "What number comes next?"

TASK 10 Show the student a flashcard with the numeral 4 on it. Ask: "What number comes next?"

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT IV

OBJECTIVES

1. To state the name of the numeral "6" when it is shown on a flashcard.

2. To recognize and name a penny coin.

3. To associate the number 6 with 6 objects by stating the word orally.

4. To recognize the numeral 6 when it appears with the numerals from 1 through 6 in random order.

5. To write the numeral 6.

6. To count, in order, from 1 through 6.

7. To count a given number of objects from a group of 10 objects.

8. To state the number which follows <u>any</u> number from 1 through 5 when shown one of the numbers on a flashcard.

VOCABULARY:

six penny cent more price tag

coin

INSTRUCTIONAL PROCEDURE

UNIT IV

INTRODUCTION

In this unit, the concept of money is introduced to the students. The penny is used in this lesson because it is familiar to most students. It would be wise to use real, rather than play money, in the activities.

In order to make certain all the students recognize a penny, give one to each member of the class. Ask them if they know what it is. Some may call it a cent, rather than a penny. Tell the class that this is another name for a penny. Tell them that they will be using pennies during their arithmetic lessons, but they are not their's to keep.

Ask someone if they know what pennies can be used for. Promote a discussion of what can be bought for a penny (not much, really). However, a stick of gum, a piece of candy, or a lollipop may be given as examples. Tell the class that later on, when they learn to count very well, they will be able to buy something with the pennies you will give them to use in class.

ACTIVITY 1

Arrange in front of the class a set of cards with numbers from 1 through 6 in random order. Ask if someone can find a number that looks different from the ones they have been using in class. If this does not elicit a response, point to some of the numbers and ask for their name. Finally, point to the 6 and ask what the number is called.

Have one member of the class arrange the numbers in order from 1 through 6. Let as many other children as possible do the same thing, or provide a set of numbers for each student to arrange in numerical order.

ACTIVITY 2

This activity should be devoted to practice in writing the numeral 6. Use Sample #1 as a guide for writing the numerals. Give additional practice, for those who need it, by using the paper holder and lined paper corresponding to the slots (See Sample #6 in Unit II).

Review of the numerals from 1 through 5 should also be given at this time. Give each student a sheet of lined paper corresponding to the slots in the paper holder. Divide each line into blocks so the students will have a guide for writing the numerals (See Sample #5 in Unit III for line spacing). Tell the class to write the number you tell them in the first block. Begin by calling the numbers in order; then call the numbers in random order from 1 through 6.

ACTIVITY 3

Place enough pennies on a table so each student may have 6 of them. Review the names of the coin (penny and cent). Tell the class they will be using the pennies for the lesson, but they will give them back so they can use them again another day. Begin by asking if they would rather have 2 pennies or 3 pennies. Why? Try to get someone to say that 3 is more than 2. You can buy more things with more pennies.

Ask one student to take 4 pennies or 5 pennies, whichever he wants. He should then count and state how many he took. Do the same with each student. Then, ask who has just 1 penny, two, three, etc., until each member of the class has responded with the correct number of coins.

Collect the pennies and tell the students that they will be using them to buy some things in class the next day.

ACTIVITY 4

Have a set of inexpensive items available with a card showing how much it will cost to buy them. Use small pieces of wrapped candy, lollipops, trinkets from a penny machine, etc. Avoid balloons, since they could cause problems in the classroom. Use the ¢ mark after the number and explain that this little mark means "cents."

Give each student 6 cents and tell them they may use the money to buy something, but they must read the price tag and give the correct amount of pennies.

Proceed with this activity as long as necessary (any unsold merchandise may be used for subsequent lessons). Collect any unused coins.

ACTIVITY 5

Use the farm animals and objects (Unit II - Sample #5) to reinforce numbers from 1 through 6. Ask the student to place the proper number of objects on the flannel board. Use verbal commands or hold up a card with a number on it. Vary the activity by asking students for two or three sets of objects; for example, 3 ducks, 2 cats, 6 trees.

Use the flashcards to promote verbal response on seeing the numerals. Concentrate on students who have trouble recognizing the numerals. At this point, the class should recognize the numbers from 1 through 6 when they are presented to them.

ACTIVITY 6

Use Sample #2 as a guide for making a ditto for use as seatwork. The student should write the number in the square to correspond to the number of animals in the block. The animals may be colored, if desired.

Place a card with a 1 on it in front of the class. Ask what comes next and have someone place the "2" card beside it. Continue until all the numbers from 1 through 6 have been put in order.

Remove all the cards except the 5. Ask what number comes next and have someone place the 6 next to the 5. Continue by showing only one number and asking for the one which follows.

Give each student a set of 6 cards with the numerals from 1 to 6. Hold up the numeral 4 and say, "Hold up the card that shows what number comes next." Continue until most of the class is able to pick out the correct number.

ACTIVITY 7

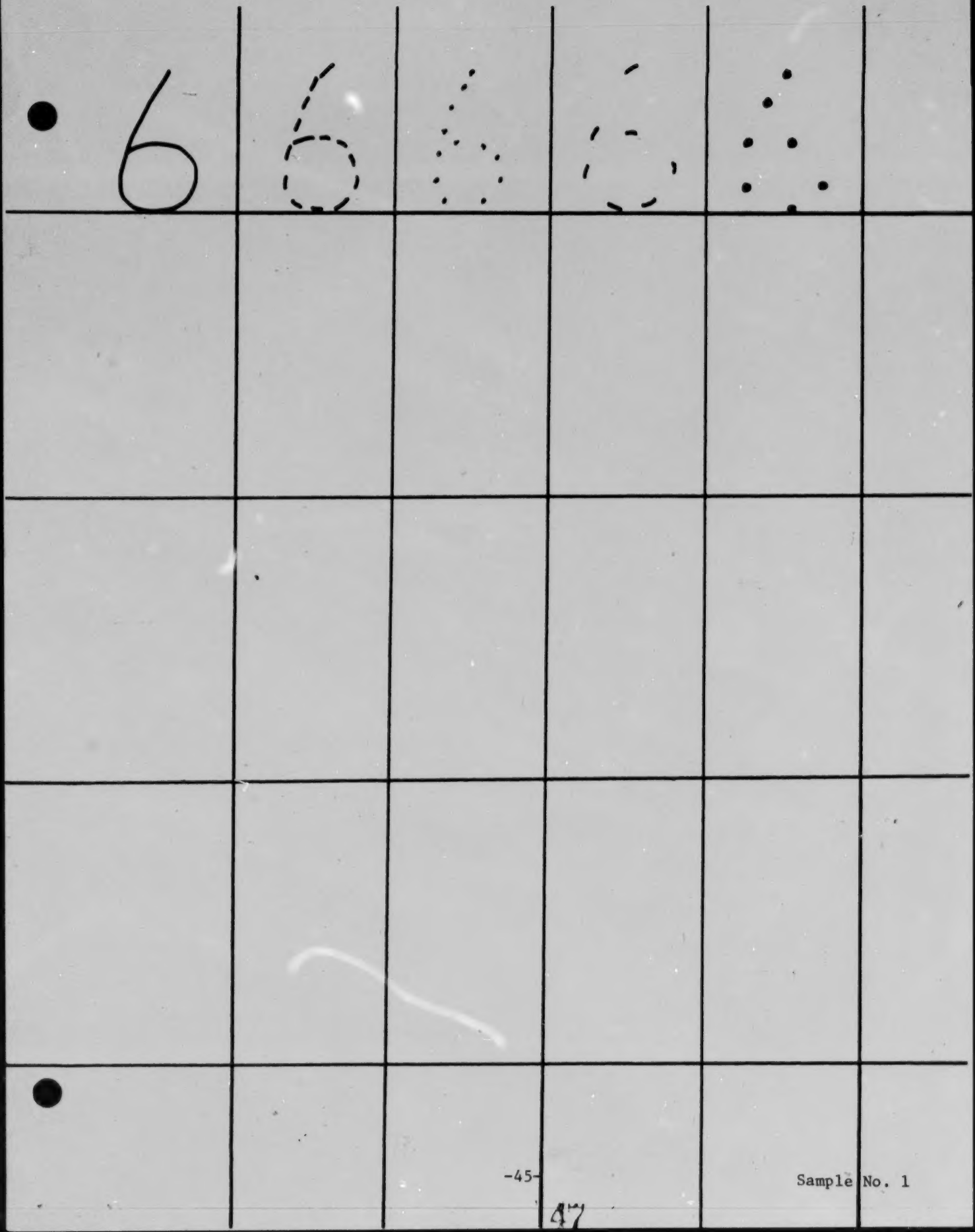
Give each student any number of pennies from 1 through 6. Ask each one to count how many pennies they have, say the number and then write the number on a piece of paper or on the chalkboard.

Have a number of things displayed in the front of the room and marked with prices from 1¢ to 6¢. Have each child come forward and select the item which matches the number of cents he has (they may either keep the item if it is of insignificant value, or put it back for use another day.) If books, pencils, or other school items are used, it should be explained to the student in advance that they are just "playing" at purchasing the objects.

COMPETENCY MEASURE

(To be administered individually)

TASK 1	(Objective 1)	Show the student the numeral 6 on a flashcard. Ask, "What number is this?"
TASK 2	(Objective 2)	Show the student a penny. Ask: "What is the name of this coin?" Give credit if the answer is "penny" or "cent."
TASK 3	(Objective 3)	Show the student 6 pennies. Say, "Count the pennies and tell me how many there are."
TASK 4	(Objective 4)	Randomly arrange a set of cards from 1 through 6 in front of the student. Say: "Show me the card with the 6 on it."
TASK 5	(Objective 5)	Give the student a piece of paper and pencil. Say" "Write the number 6."
TASK 6	(Objective 6)	Ask the student to begin at number 1 and count out loud up through 6.
TASK 7	(Objective 7)	Arrange 10 cubes in front of the student. Say: "Give me 6 of these cubes."
TASK 8	(Objective 8)	Show the student a card with a 2 on it. Ask: "What number comes next?"
TASK 9	(Objective 8)	Show the student a card with a 5 on it. Ask: "What number comes next?"
TASK 10	(Objective 8)	Show the student a card with a 3 on it. Ask: "What number comes next?"


6

Sample No. 2

PRE-TEST FOR UNIT V

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 7

TASK 1	Show the student a flashcard with the numeral 7 on it. Ask: "What number is this?"
TASK 2	Place, in random order, flashcards numbered from 1 through 7 in front of the student. Say: "Point to the 7."
TASK 3	Show the student a flashcard with the number 4. Say: "What number comes next?"
TASK 4	Give the student a piece of paper and say: "Write the number 7 on this paper."
TASK 5	Place 10 crayons in front of the student. Say: "Give me 7 crayons."
TASK 6	Say" "Begin with the number 1 and count up to 7."
TASK 7	Arrange 10 pennies in front of the student. Show a flashcard with the number 7 on it, and say: "Give me this many pennies."

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT V

OBJECTIVES

1. To state the name of the numeral "7" when it is shown on a flashcard.

2. To write the numeral "7" when directed to do so.

3. To recognize the numeral "7" when it appears in random order with the numerals from 1 through 7.

4. To count, in order, from 1 through 7.

5. To state the number which follows any number from 1 through 6 when shown one of the numbers on a flashcard.

6. To associate the numeral 7 with 7 objects by stating and writing the numeral.

VOCABULARY:

seven

INSTRUCTIONAL PROCEDURE

UNIT V

INTRODUCTION

The concept of money was introduced in the last unit, and activities relating to the use of money should be continued in this and the following units. Every unit should not only introduce a new number, but review those which have been learned in order to provide maximum reinforcement.

ACTIVITY 1

Place large cards with the numerals from 1 through 6 in a bag or box. Give each student an opportunity to select one of the cards without looking; he should then state the number, and place it on the chalk ledge. When all numbers have been selected, someone should place them in order.

Replace the cards in the container, only this time add the card with a "7" on it. If the student who selects this card cannot name the numeral, let someone else in the group answer. Continue until all numbers have been selected and again have students place them in order. Call attention to the placement of the 7 and ask someone to count as they point to each numeral. Continue as long as necessary, concentrating on students who seem to be having difficulty.

ACTIVITY 2

Use this activity for writing the numeral "7". Place 3 dots on the chalkboard to guide placement of strokes for making a "7". Example: → • • • Place a small arrow on the dot which marks the beginning of the 7 and ask each student to connect the dots. Have them say "7" as they make the lines. See Sample #1 for suggested activity using the slotted paper guide for students who need it.

Also use a template with the numeral "7" to assist students with writing the symbol.

Once again, review the writing of the numerals 1 through 7, providing additional reinforcement for previous lessons. Place a piece of paper in the students' paper guides and tell them to write the numbers you hold up on the flash cards. In random order, display each number from 1 through 7 and ask the students to write it on their paper. Review numbers which the students have trouble writing. Place a second sheet of paper in the guide and call off in random order the numbers from 1 through 7, giving the class the opportunity to write each one. This activity should be used as often as necessary in order to reinforce the students' ability to write the figures.

ACTIVITY 3

Show the class a penny and ask if they remember what it is. Tell them you are going to sell something for 7 pennies, but they must be able to count the right number from the pile of pennies. Place about 15 pennies in a pile and ask one of the students to take 7 and then make a selection from the toys and trinkets displayed in the room. If they count incorrectly, they must try again before they are permitted to select an item. Use a small sign labeled "7¢" on the display. Review the ¢ mark to make certain everyone knows what it means.

ACTIVITY 4

See Sample #2 for a suggested fun game which uses the dot-to-dot concept for learning numbers in sequence. Reproduce the dot picture of the kite on a transparency and put on an overhead projector positioned so the image is projected on the chalkboard. Ask the class if they can guess what the picture is. Have one student come to the board and point to the "1". Then to the "2". Tell him to draw a line from the 1 up to the 2. Proceed with various children drawing lines to connect the dots, letting them guess each time what the drawing will be.

Have dittos of the kite ready for each student and have him connect the dots in sequence by using a black crayon. They may wish to color their picture after it is completed.

Follow the same procedure with the sailboat (Sample #3). This activity may be used during a later class period, if desired.

ACTIVITY 5

Give each student a bag of puzzle numbers (Sample #4) to put together. Their bags should contain only the numbers from 1 through 7. They should count the objects and find the number which matches. If this procedure is too difficult, have them arrange the numbers in order from 1 through 7, then distribute to each child just one of the parts of the puzzle which has the objects on it. They should count the objects and find the correct number and place the pieces together. Continue in this way until all the pieces are correctly matched.

ACTIVITY 6

In order to reinforce the concept of what numbers follow a given number - place a set of cards from 1 through 7 on a table in front of the class. Place a card with any number from 1 through 6 on the chalk ledge. Ask one of the students to find the number which comes next and place it after the number selected. Continue this activity until most of the class exhibits an understanding of "what comes next".

ACTIVITY 6 (Continued)

Give each student a piece of paper which has been blocked off in 8 spaces. Hold up a number from 1 through 6 and say, "Write the number that comes next". Show the class which block they are to write in. Continue by holding up all the numbers one at a time, asking the students to write the number that comes next.

COMPETENCY MEASURE

(To be administered individually)

THE NUMERAL 7

TASK 1 (Objective 1) Show the student the numeral 7 on a flash card and ask, "What is this number?"

TASK 2 (Objective 2) Give the student a piece of paper and say, "Write the number "7" on this paper".

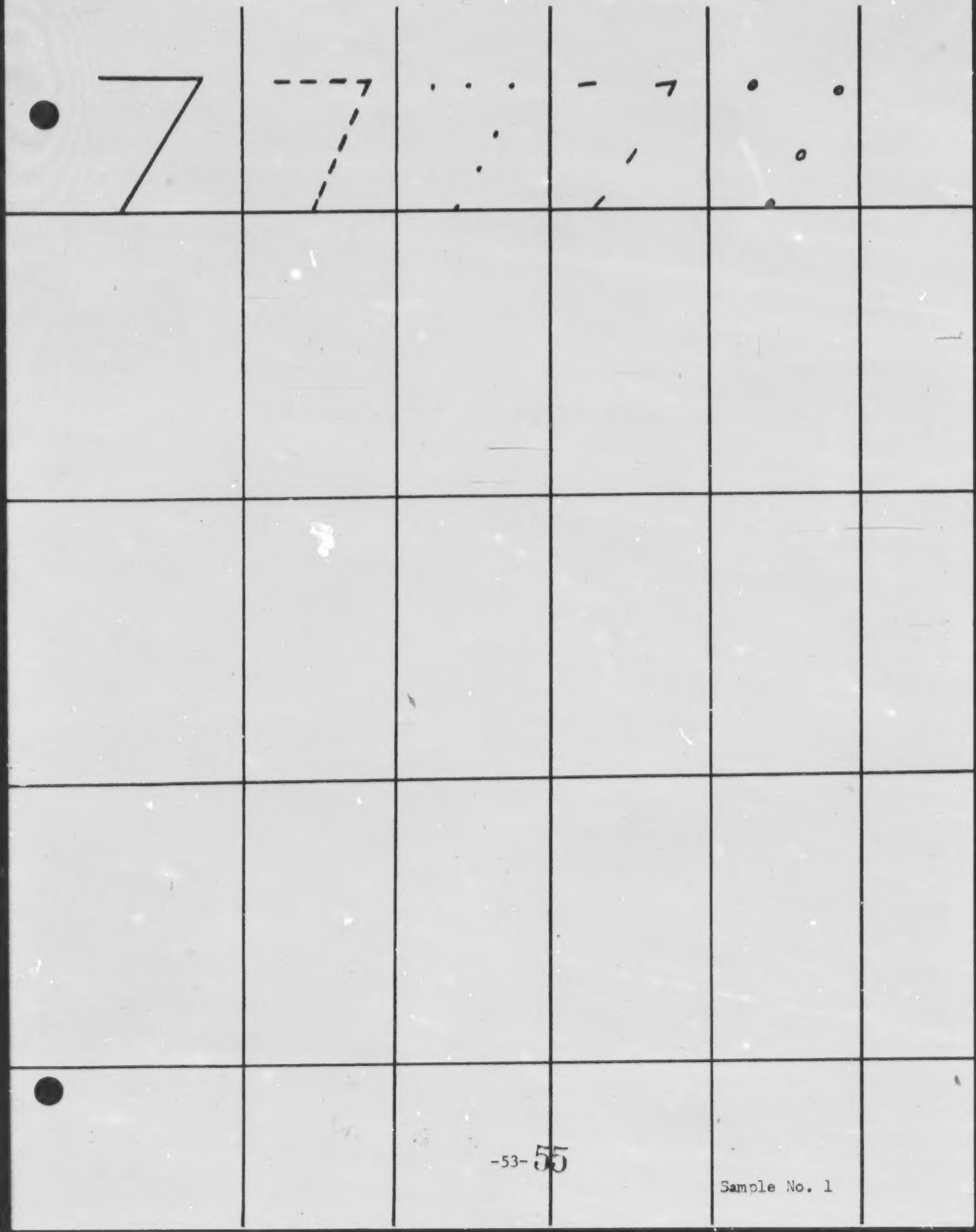
TASK 3 (Objective 3) Place a set of flash cards in random order in front of the student. Say, "Show me the 7".

TASK 4 (Objective 4) Arrange 7 pennies in front of the student. Say, "Count out loud the number of pennies".

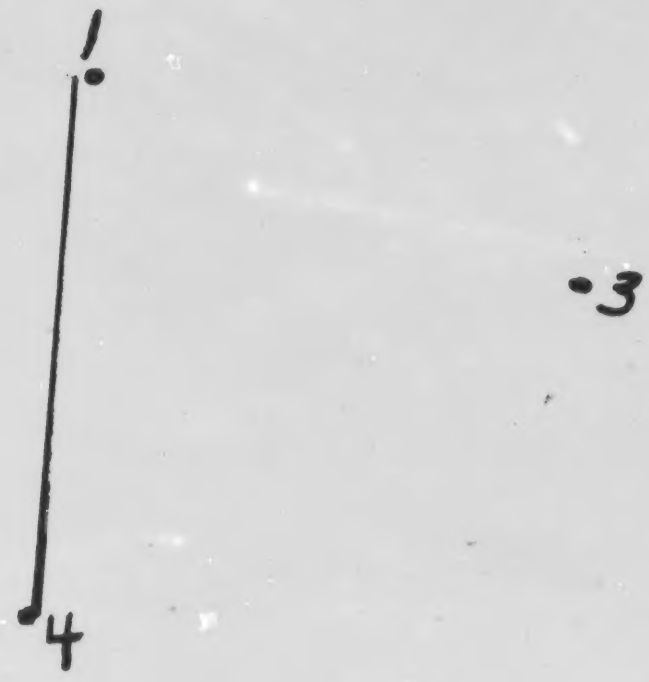
TASK 5 (Objective 5) Show the student a flash card with the number 6 on it. Say, "What number comes after this one?"

TASK 6 (Objective 6) Show the student 7 crayons. Say, "Tell me how many crayons there are".

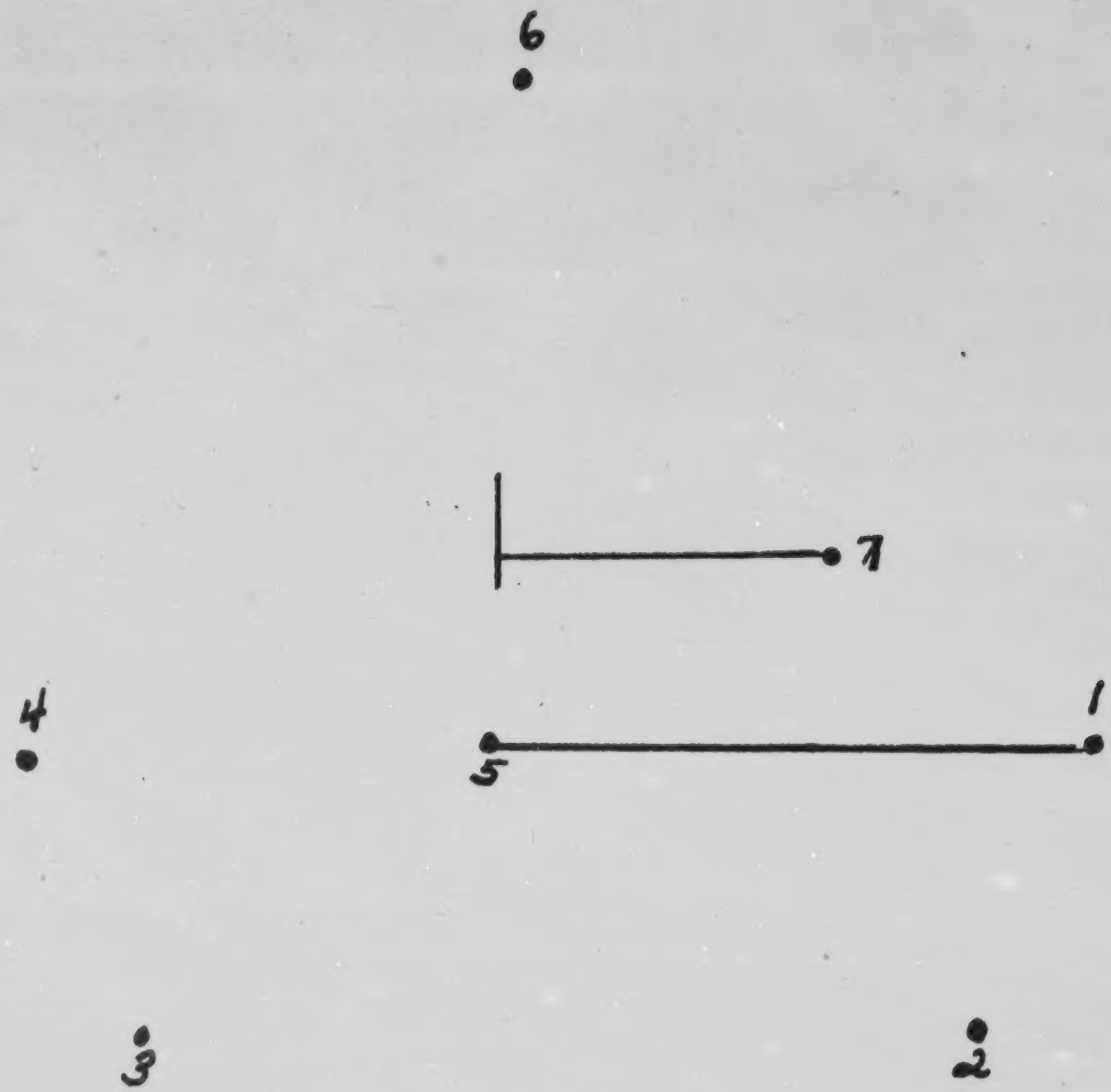
TASK 7 (Objective 6) Show the student 7 pennies. Say, "Count the pennies and write on this piece of paper how many there are.



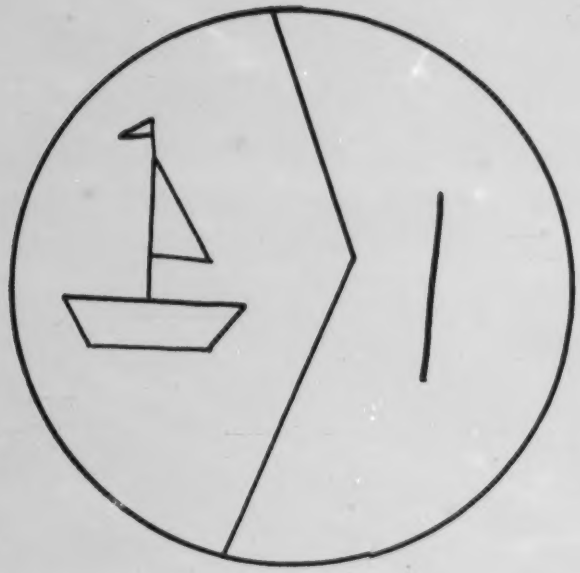
Sample No. 1

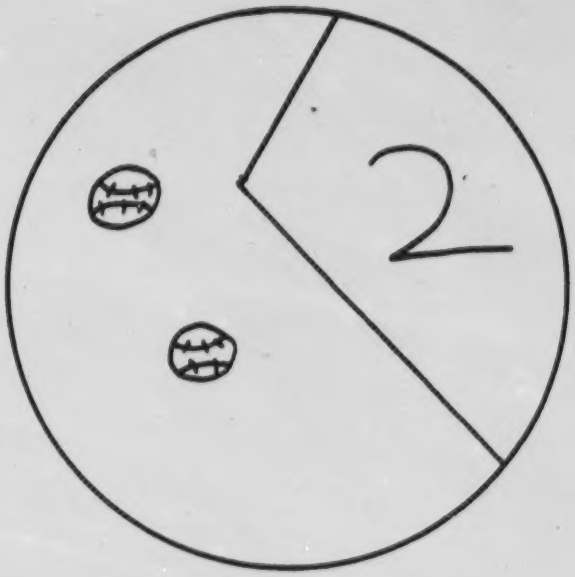


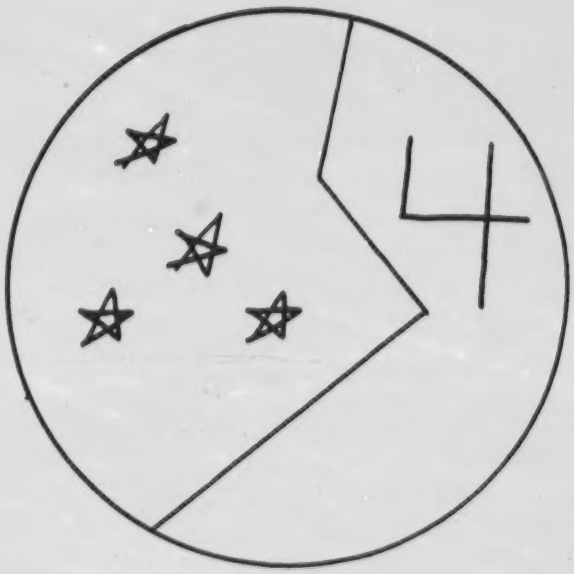
Sample #2

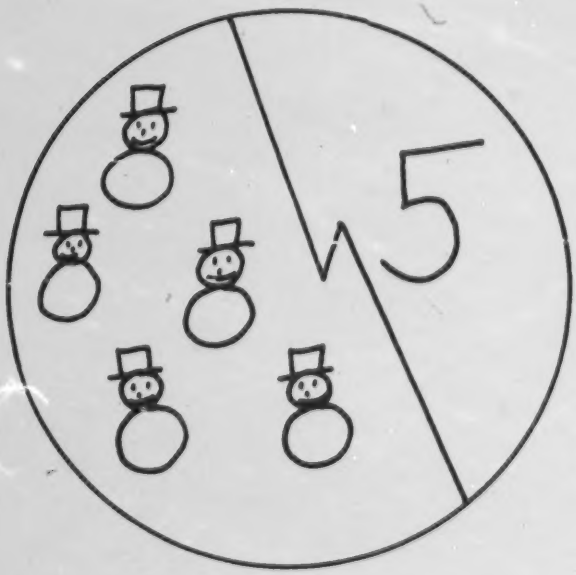


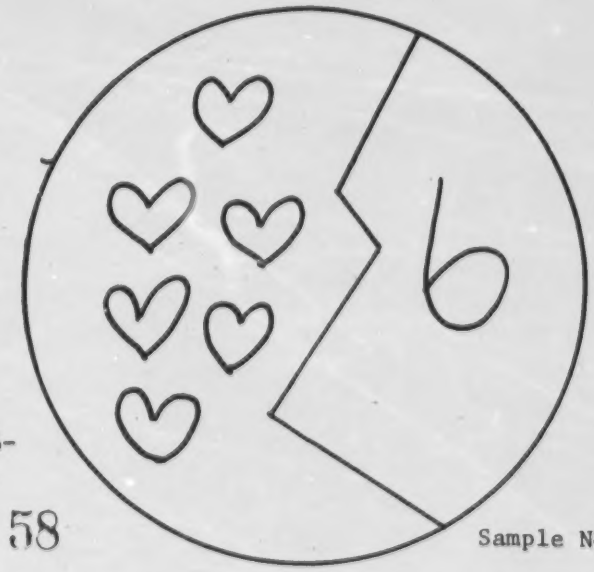
Sample #3



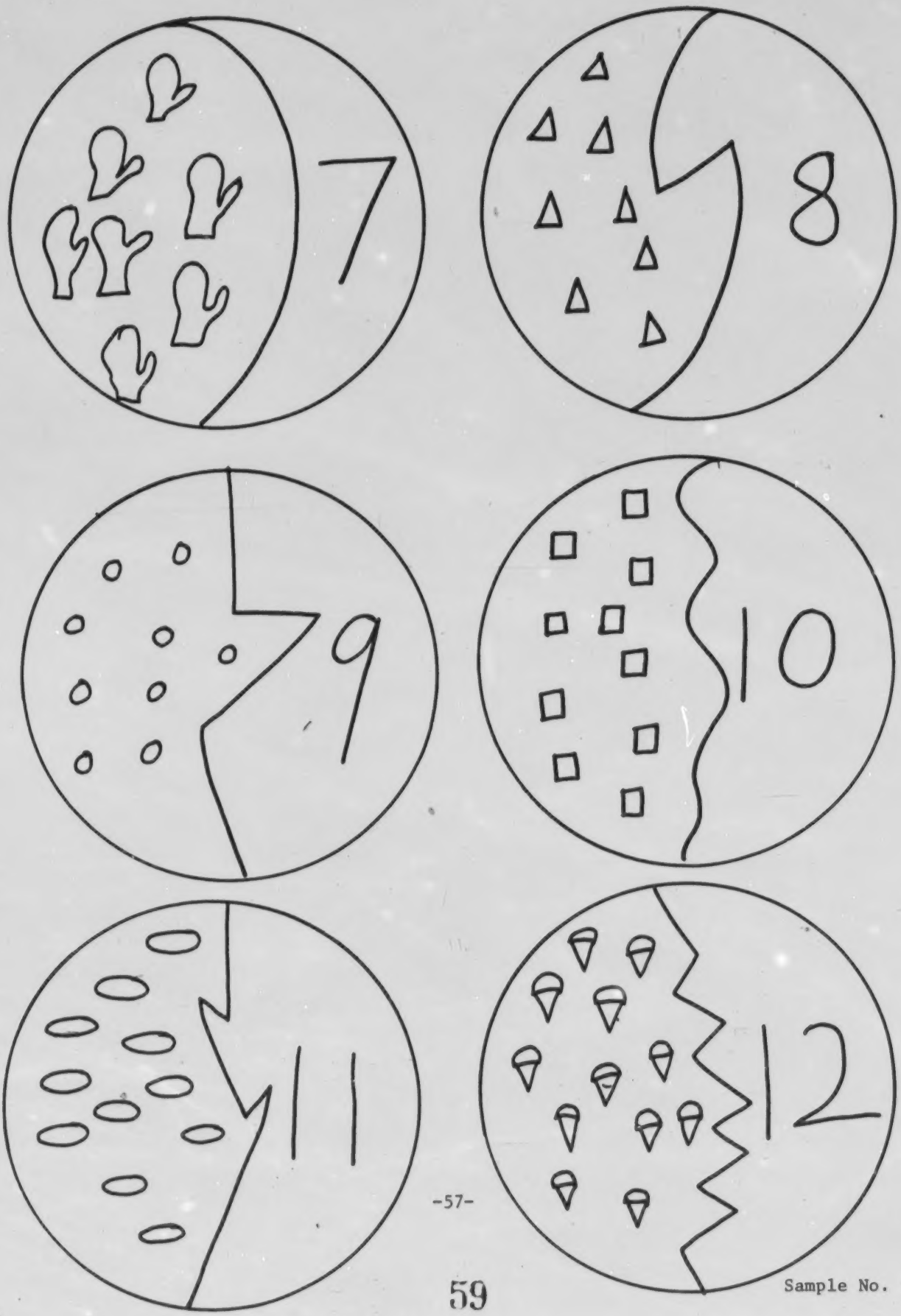








Sample No. 4


7
8
9
10
11
12

PRE-TEST FOR UNIT VI

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 8

TASK 1 - Show the student a nickel and say: "What is this called?" Give credit if he says, "nickel" or "five cents."

TASK 2 - Show the student a card with an 8 on it and say: "What number is this?"

TASK 3 - Show the student a card marked 5¢. Ask him what it says.

TASK 4 - Show the student 4 pennies and a nickel and a sign marked 5¢. Say: "Which would you use to buy something that cost this much?" (Hold up the sign and point first to the pennies and then to the nickel). Give credit if the student points to the nickel, or says: "the nickel" or "5 cents."

TASK 5 - Give the student a piece of paper and say: "Make an 8."

TASK 6 - Show a set of flashcards from 1 to 8 placed on the table in random order. Say: "Show me the 8."

TASK 7 - Place 8 pennies in front of the student. Say: "Count out loud the number of pennies."

TASK 8 - Place 12 crayons on the table. Say: "Give me 8 crayons."

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT VI

OBJECTIVES

1. To state the name of the numeral "8" when it is shown on a flashcard.

2. To write the numeral "8" when directed to do so.

3. To recognize the numeral "8" when it appears in random order with other numerals.

4. To recognize and name a nickel.

5. To state in some way that 5 pennies have the same value as a nickel.

6. To distinguish between a penny and a nickel by naming both coins.

7. To count, in order, from 1 through 8.

8. To select 8 objects from a group of 12 objects.

VOCABULARY:

eight	five cents	the same
nickel	equal	

INSTRUCTIONAL PROCEDURE

UNIT VI

INTRODUCTION

In this unit, the nickel coin is introduced for the first time. It will be necessary to review the penny concept in order to show the relationship between 5 pennies and a nickel.

A reminder: emphasis should be placed upon having the children verbalize frequently during these lessons, not only as they say the number, but also when they write it. For example, when teaching the writing of the figure 8, have the children say something similar to: "I make an S; then I tie the ends."

ACTIVITY 1

Place a row of numbered flashcards, in order, on the chalk ledge, omitting number 4. Ask if anyone can tell what number is missing. This procedure may be continued by asking one student to leave the area and having one of the other students remove a numeral. The returning student may then try to determine the missing number. Continue until each student has had a chance to participate. Ask if anyone can tell what number comes after the 7. Place all the numbers from 1 through 8 on the chalk ledge in random order and ask someone to find the 8. Let someone unscramble the numbers and put them in order.

Give each student a set of numbers from 1 through 8 cut from oaktag, or use a set of commercially produced numerals (See Sample #1). Scramble them and have each student put them in order. Give assistance where necessary.

ACTIVITY 2

This activity should be used to practice writing the 8. Since this numeral is difficult for some children to write, a systematic sequence of instruction may be necessary. Each member of the class should have a piece of 8-1/2 x 11" paper marked off into 4 spaces. Each space should have a dot showing where to begin (See Sample #2). Place a dot on the board (or transparency) and tell the class to watch while you make an S, starting on the dot. Then join the two ends of the S to make an 8. Tell the class they are to make an 8 like yours. Instruct them to put their crayon on the dot and make an S, then tie the ends with a line. Continue this procedure on both sides of the paper, giving assistance where necessary. You

ACTIVITY 2 (Continued)

may wish to project an 8 on the board and have students go over it with chalk to get the feel of writing the number.

An additional activity which may be used for getting the "feel" of making an 8 involves the use of clay or modeling dough. Give each student a piece of clay and tell him to make a snake. Then, ask him to make an 8 out of the snake. This activity may be extended to include other numbers, also. An entire lesson may be devoted to making all the numbers from 1 through 8 with clay or modeling dough.

Use Sample #3 for writing activity to be used in paper holder, if desired.

ACTIVITY 3

Show the class a penny and ask what it is called. Be sure the names "penny" and "cent" are both used by the children. Give each student 5 pennies and ask them to count them. Ask how many cents they have.

Collect the pennies and show the class a nickel. Ask if someone can name the coin. If they use the word "nickel", ask if there is another name for it; remind them that a penny was called "one cent." See if someone knows how many cents a nickel is worth. Repetition of the word "nickel" and "five cents" will help imprint on the students' minds the cent value of the nickel.

Show the students five pennies (for ease in demonstrating this segment of the lesson, glue pieces of flexible magnetic strips on the backs of five pennies and place in a row on magnetic board). Ask them how many cents are on the board. Place a nickel under the pennies and say, "This is a nickel. Tell me what else it is called." When the class can use the words "five cents" and "nickel" interchangeably, ask: "Which would you rather have - a nickel or 5 pennies?" This may elicit a variety of answers, but emphasis on the equal value of both sets of coins should eventually make clear that they will buy the same item.

Distribute 5 pennies to some of the students and a nickel to each of several different students. Place a selection of small trinkets on the table and label them "5¢". Ask the class what the sign means (if necessary, review the cent mark).

Ask someone who has five pennies if he has enough money to buy one of the toys. If he answers correctly, let him select something and pay for it - counting out the pennies. Ask someone with a nickel how many cents he has. Ask him if he could buy something which costs five cents. Then let him select an item and pay for it with the nickel. Continue until everyone has had a chance to answer questions about the nickel and five pennies and has purchased something with their coins.

ACTIVITY 3 (Continued)

Have the students verbalize as much as possible during this lesson. Most of the students should be able to name the penny and the nickel coins, and also understand that a nickel is worth five cents.

If more reinforcement is necessary, give each student a different number of pennies, making sure at least one child has five of them. One student should also have a nickel. Show a small item marked with a 5¢ sign. Ask each child individually if he would be able to buy the item with his money. Have him state what the price is, and then count his pennies. The student who has the nickel should be able to state that the price is 5¢ and he has a nickel or 5¢.

ACTIVITY 4

Use the farm scene for a review of numbers up through 8. Prepare the flannel board by placing different numbers of items on it, and ask students to come up and count out loud.

Give each student a ditto of the various objects on the flannel board (See Sample #4). Explain that you are going to put some of the animals and other things on the flannel board, and they are to count them and write the number on their paper beside the right thing. Demonstrate what you mean and be sure the students understand. Place any number of objects from 1 through 8 on the board. Remove each set before placing another on the scene.

ACTIVITY 5

Distribute pipe cleaners, cubes, or other small, easily obtainable items to each child. Sets of 1 through 8 should be given out in random order. Hold up a flashcard with a number on it and say, "Who has this number of pipe cleaners?" Continue until all the students have had an opportunity to respond. If necessary, repeat the activity, redistributing the items among the children.

Give the students a sheet of paper marked off in 8 blocks. Tell them they are going to write the number that comes <u>after</u> the number you show them. In random order, display the numbers from 1 through 7, repeating each time the statement that they are to write the number that comes next. On the last number, show a "2" and say, "See if you can think of the number that comes <u>before</u> this number - what number do you say <u>before</u> 2?"

REVIEW

Show the class a penny. Ask for both names.

Show a nickel - ask for both names.

Give each student a nickel and four pennies. Show a small object labeled 5¢. Ask each student whether they would use the nickel or the 4 pennies to buy the item.

REVIEW (Continued)

Give each student a piece of paper blocked off in squares. Ask them to make 8's in each square. Give assistance where necessary; those children having trouble should verbalize the construction of the figure as they write.

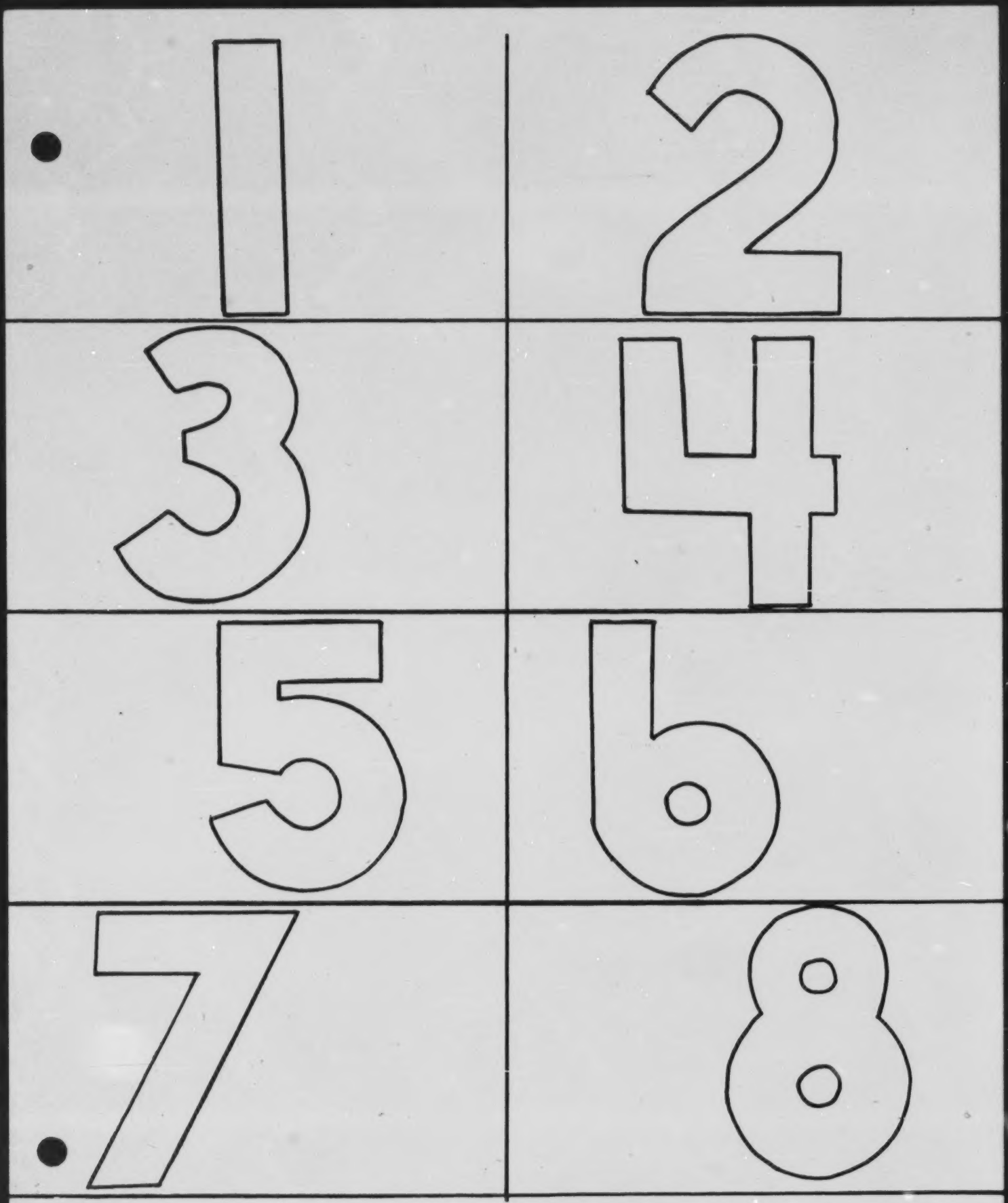
Give each student a set of numbers from 1 through 8 and have them put in order.

COMPETENCY MEASURE

(To be administered individually)

The Numeral 8 and The Nickel

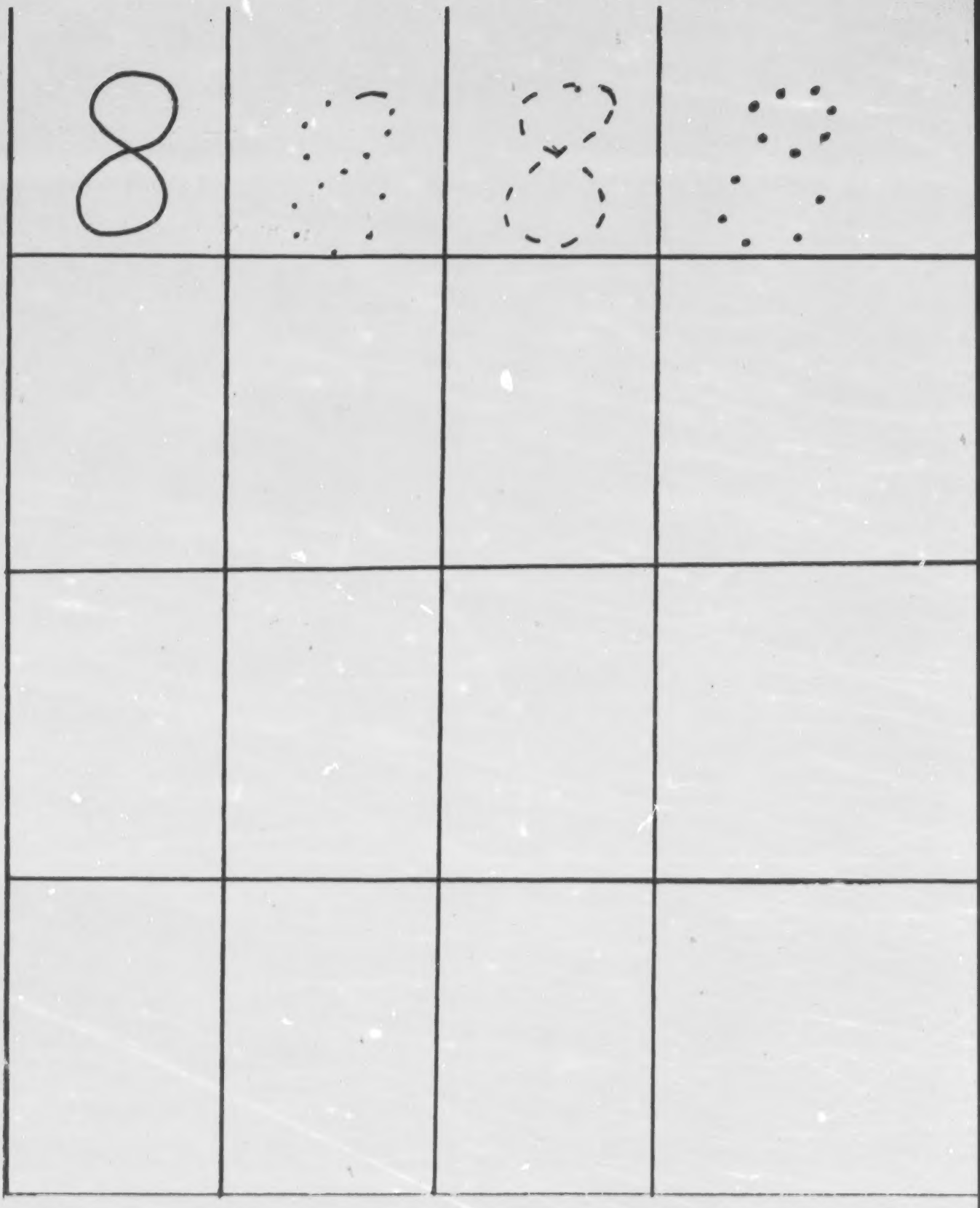
TASK 1	(Objective 1)	Show the student the figure 8 on a flashcard. Say: "What is this number?"
TASK 2	(Objective 2)	Give the student a piece of paper and crayon and say: "Write the number 8."
TASK 3	(Objective 3)	Display a set of cards in random order from 1 through 8. Say: "Show me the 8."
TASK 4	(Objective 4)	Show the student a nickel and say: "Tell me the name of this piece of money." Give credit if he says: "A nickel" or "five cents."
TASK 5	(Objective 5)	Show the student a nickel. Place 10 pennies on the table. Say: "This is a nickel or 5 cents. Give me the number of pennies that you would use to buy something that cost a nickel."
TASK 6	(Objective 6)	Show the student a nickel and a penny. Say: "Tell me the name of this money." Point to the penny. "Give me another name for it." Point to the nickel and say: "What is this called?" Then: "Give me another name for it." (The student must answer all 4 questions correctly in order to get credit).
TASK 7	(Objective 7)	Place 8 paper clips on the table. Say: "Count these paper clips out loud."
TASK 8	(Objective)	Place a small empty box on the table along with 12 pipe cleaners. Say: "Put 8 of these pipe cleaners in the box."



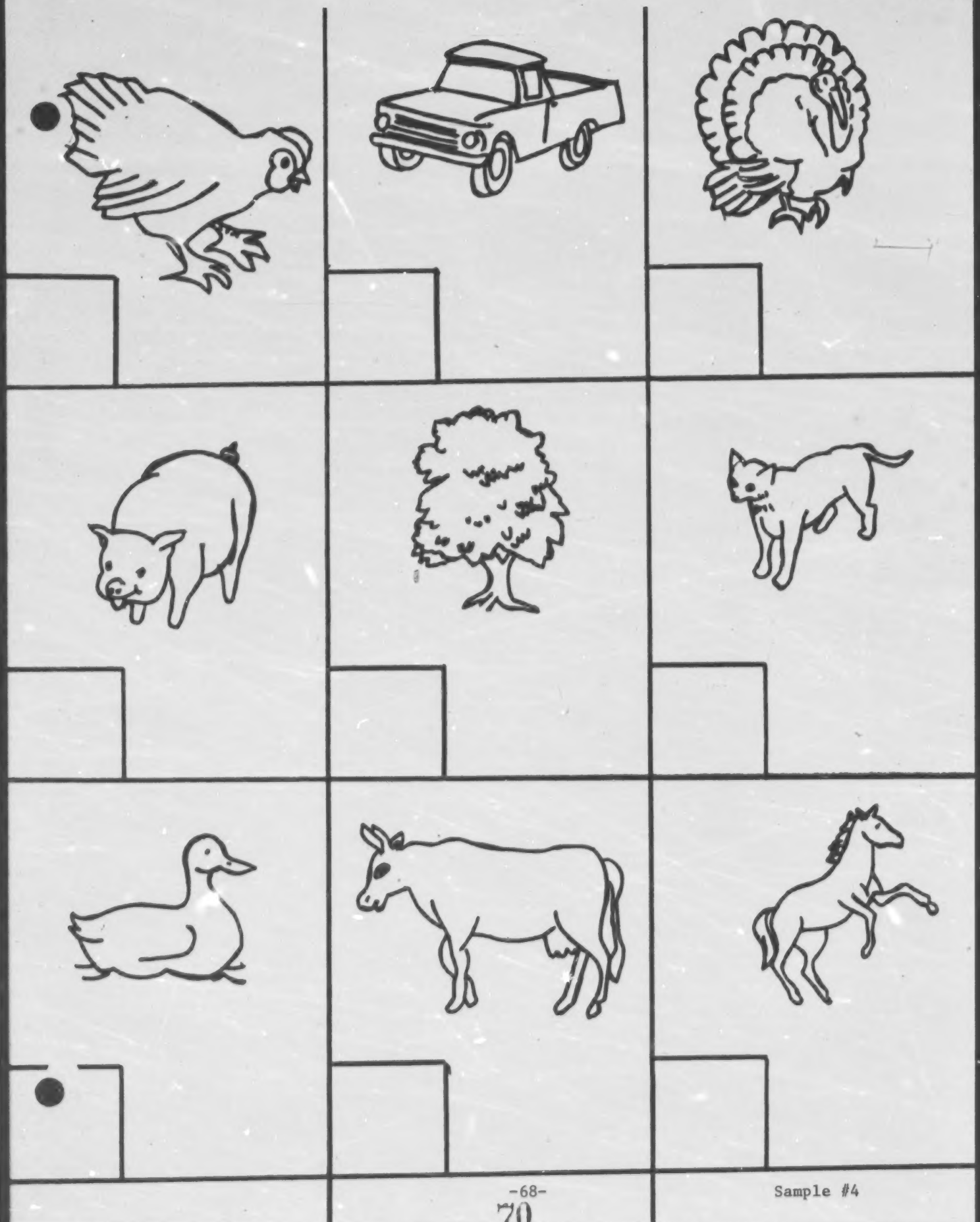
Reproduce on oaktag. Cut rectangles apart, or cut out numbers, if desired. Make one set per student.

Sample #1

Sample #2



This sample designed for use in the paper holder.



Sample #4

PRE-TEST FOR UNIT VII

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 9

TASK 1	Show the student a card with the numeral 9 on it. Say: "What number is this?"
TASK 2	Give the student a piece of paper and crayon and say: "Make a 9."
TASK 3	Place 12 pipe cleaners on the table. Say: "Give me 9 pipe cleaners."
TASK 4	Show the student a 4 and say: "What number comes after this one?"
TASK 5	Show the student the number 8 and say: "What number comes after this one?"
TASK 6	Display in random order all the numerals from 1 through 9. Say: "Show me the 9."
TASK 7	Say: "Begin with number 1 and count up to 9." (If the student makes any errors in counting, no credit should be given).

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT VII

OBJECTIVES

1. To state the numeral "9" when it is shown on a flashcard.

2. To write the numeral "9" when directed to do so.

3. To recognize the numeral "9" when it appears in random order with other numerals.

4. To select 9 objects from a group of 12 objects.

5. To count, in order from 1 through 9.

6. To state the numeral which follows any numeral from 1 through 8.

VOCABULARY:

nine

INSTRUCTIONAL PROCEDURE

UNIT VII

INTRODUCTION

At this point in the lessons, students should be reinforced daily with activities which pertain to the recognition and the meaning of numerical symbols. They may be asked to count the number of boys in the class and the number of girls in the class. They might be asked to count the number of students who are wearing brown shoes or black shoes. During the course of the day, many opportunities should arise where students may use their counting skills other than during the arithmetic lesson.

ACTIVITY 1

Write on the chalkboard one of the numbers which the class has already studied. Ask for its name. At some point, write a "9" on the board and ask someone to name it.

Give each student a piece of modeling dough or clay and show them how to roll it into a long "snake." Tell them to make a "9" out of the dough. Demonstrate by placing a piece of clay on a cardboard or chalkboard and ask the class to make a "9" with you.

Distribute a worksheet for practice in making 9's (See Sample #1).

ACTIVITY 2

Use Sample #4 in Unit 5 (puzzle numbers) in this activity. Give the students the part which has numbers from 1 through 9. Ask them to put them in order. Give the other halves of the puzzle to the students and tell them to find the part which has 1 object and place it with the Figure 1. Continue by asking the class to find each part (not necessarily in order). By doing this as directed, the children will be required to count the objects rather than just trying to match the proper halves by trial and error.

Distribute dittos with rows of different numbers of ice cream cones (See Sample #2). Give each student a box of 8 crayons and give directions for coloring. Say: "Pick up your red crayon. Now, find the space with one ice cream cone. Color that cone red." Continue, giving directions for coloring each line of cones, but ask for the numbers in order. The last question should be: "Count the row of cones that are not colored. How many are there? Turn your paper over and make a big 9."

ACTIVITY 3

Use a number board similar to the one shown on Sample #3. Or, as an alternate, use a set of cards from 1 through 9, placed with their blank sides toward the class. Ask someone to expose one of the numbers and name it. Then ask him to say what number comes next. He should then expose the next number to see if he is correct. He should be asked to say the two numbers: "six-seven", or "two-three."

Continue by giving everyone a turn at exposing a number and naming the next one.

ACTIVITY 4

Use transparency (See Samples #4 and #5)to project dot-to-dot pictures on chalkboard. Give each child an opportunity to draw one of the lines to the next consecutive dot. Ask them to guess what the picture will be each time a new line is drawn.

Follow up the lesson with a ditto of the same picture. Do this as a class exercise, so that everyone finishes connecting the dots at the same time. Ask the class to put their crayon on Dot 1. Say: "What number comes next? Draw a line over to that dot." Continue until the picture is finished.

ACTIVITY 5

Give each student a nickel and 4 pennies. Ask what each of the coins are called. Ask them to count the number of cents they have. Probably some children will not be able to do this, and a review may be necessary.

Give some children 4 pennies; some of the children 3; some 2 and some 1 penny. Tell them they are going to go shopping with their money and see what they can buy. Arrange a display of small trinkets or candy, all labeled with a sign reading 5¢. Since no one has 5¢, it will be necessary for each student to "go to the bank" and get enough pennies to make a nickel. They should count their own pennies and continue counting the other pennies at the "bank" until they get 5. They should count out loud while they do this; encourage them to say something like this: "I have 3 pennies - this one makes 4 and this one makes 5." They should be permitted to buy something with their money.

ACTIVITY 6

Print all the students' names on the board. Tell them you are going to put a star beside their name when they answer correctly. When the game is over, they will count how many stars they have and the one who has the most will get a gold star (this can be a small star sticker or one cut from yellow construction paper and fastened on the students' shirt or dress with masking tape).

ACTIVITY 6 (Continued)

Explain that you are going to put a number on the board, and ask someone what number comes next. If he does not answer correctly, ask someone else. They should then write the next number on the board.

Erase, and continue this procedure as long as necessary. At the end of the game let each student count the stars beside his name and write the number beside it. Let the class decide who has the most stars and then award the prize.

ACTIVITY 7

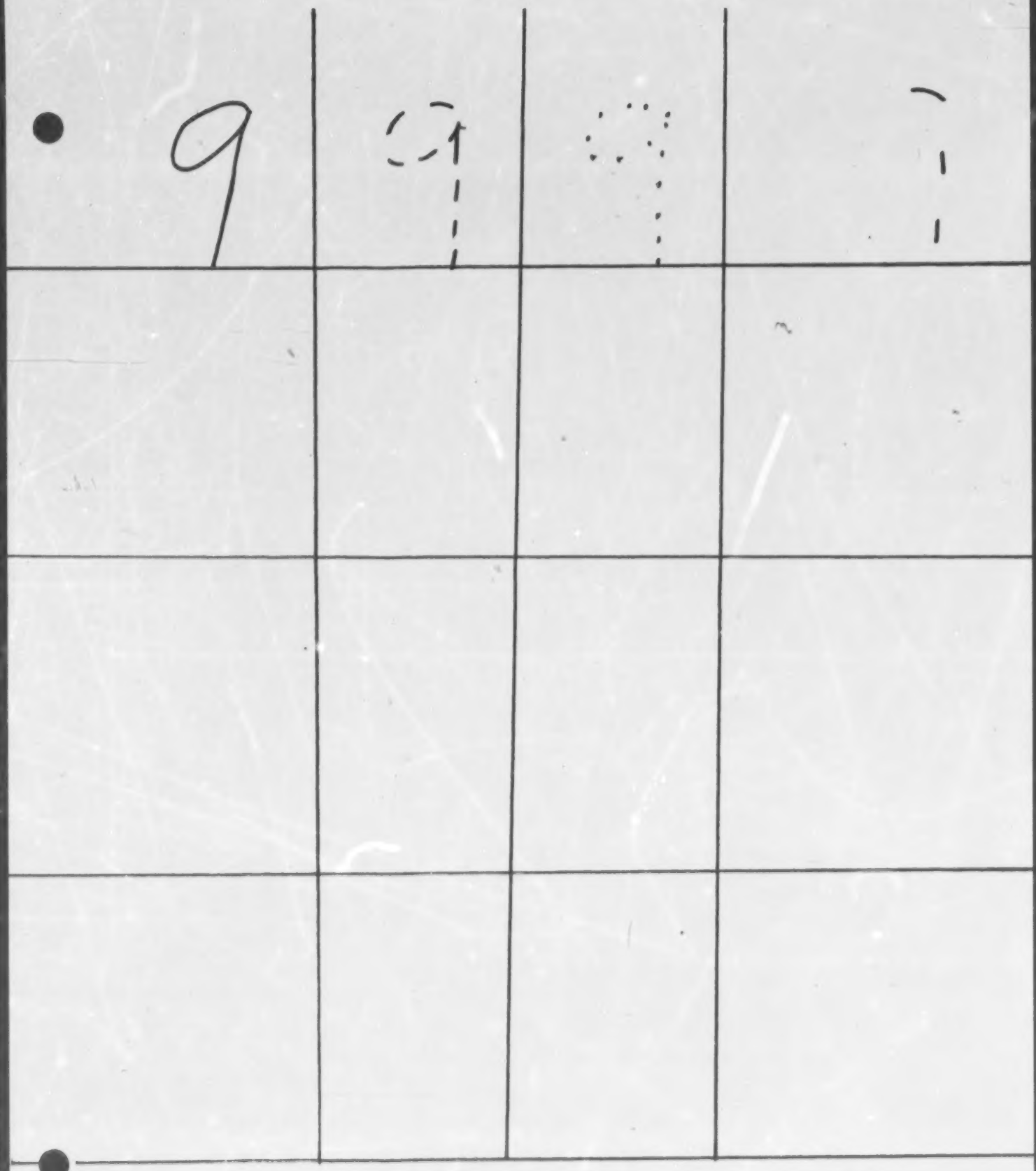
Give each child nine 4 inch squares of paper and a black crayon. Tell them you are going to ask them to write one number on each sheet. Call off the numbers from 1 through 9 in random order, making certain there is only one number per sheet. Then, ask the students to put their numbers in order. This will not only give them practice writing numbers, but will also determine if they can "read their own writing."

COMPETENCY MEASURE

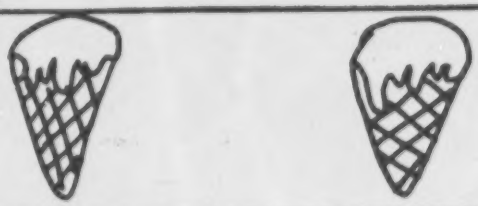
(To be administered individually)

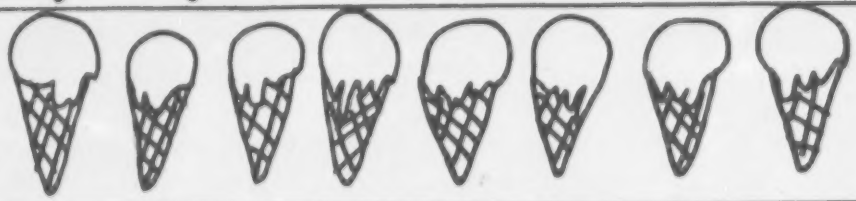
The Numeral 9

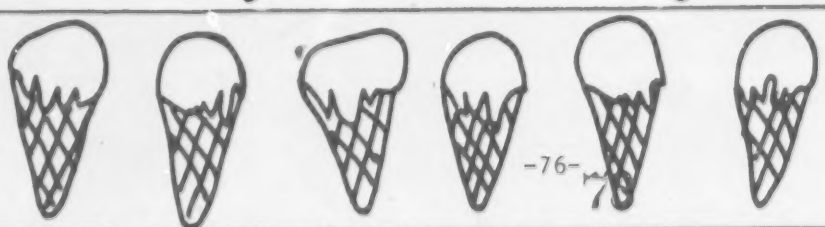
TASK 1	(Objective 1)	Show the student a 9. Say: "What is this number?"
TASK 2	(Objective 2)	Give the student a piece of paper and a black crayon. Say: "Write the number 9."
TASK 3	(Objective 3)	Give the student a set of numbers from 1 through 9 which have been printed on separate cardboard squares. They should be arranged in random order - one on top of the other. Tell the student, "Look at each card and give me the 9."
TASK 4	(Objective 4)	Pile 12 pennies in front of the student. Say: "Give me 9 pennies. Count out loud."
TASK 5	(Objective 5)	Tell the student: "Begin with the number 1 and count up through 9."
TASK 6	(Objective 6)	Show the student a 6 and say: "What number comes next?"
TASK 7	(Objective 6)	Show the child an 8 and say: "What number comes next?"



Sample #1
(This sample designed for use in the Paper Holder)

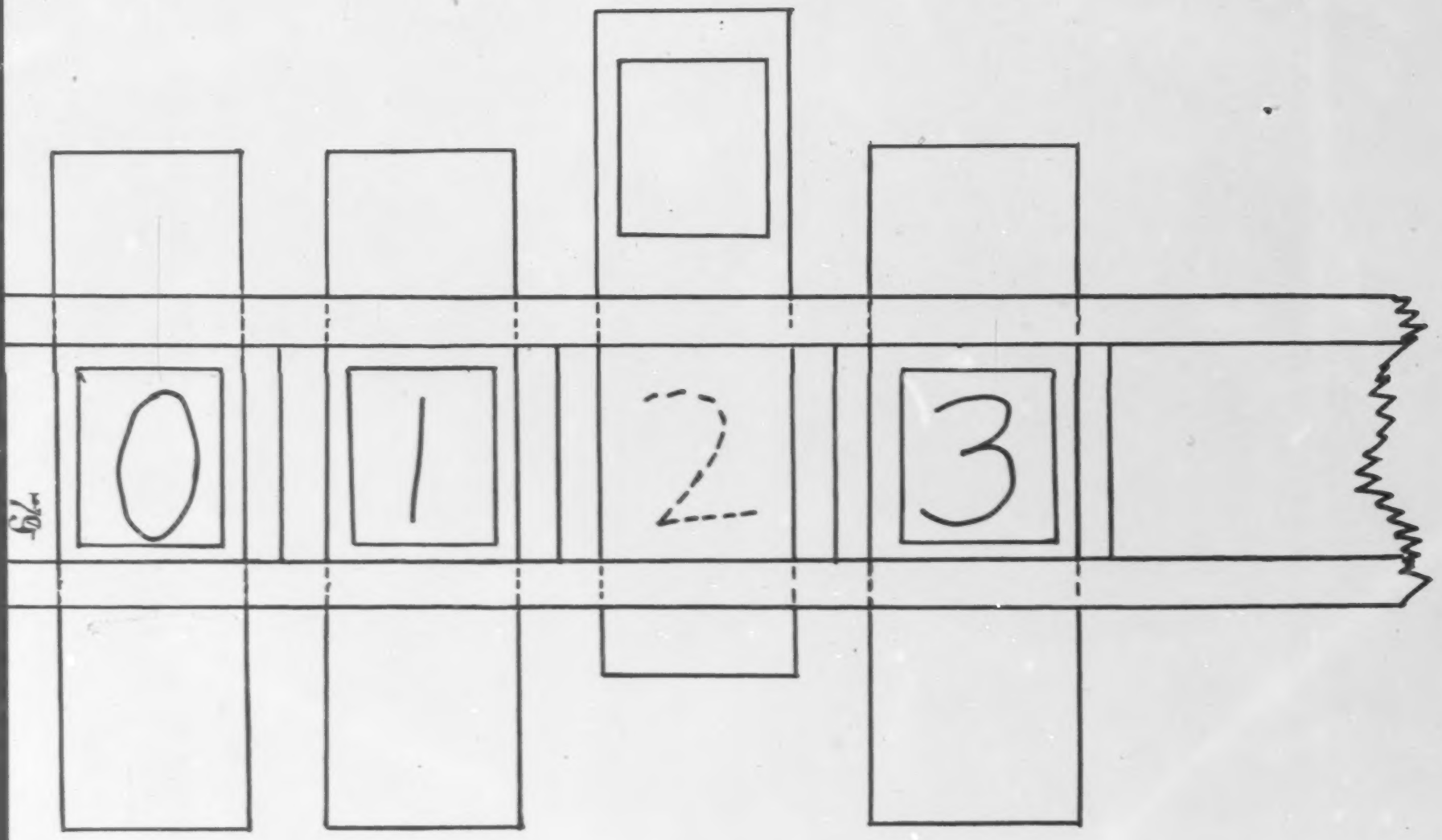






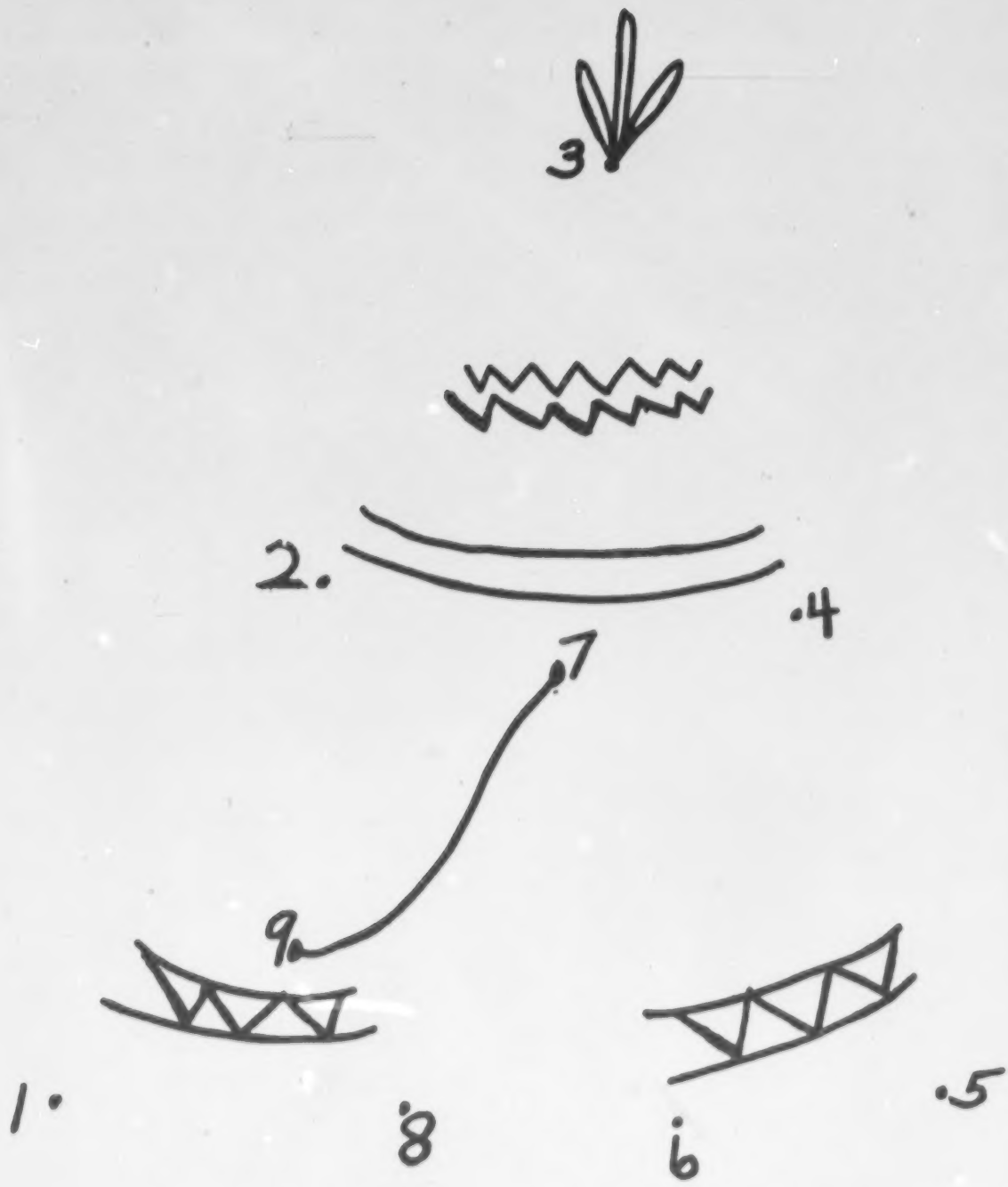
Color each set of cones as directed. Write the number of each set in the space provided.

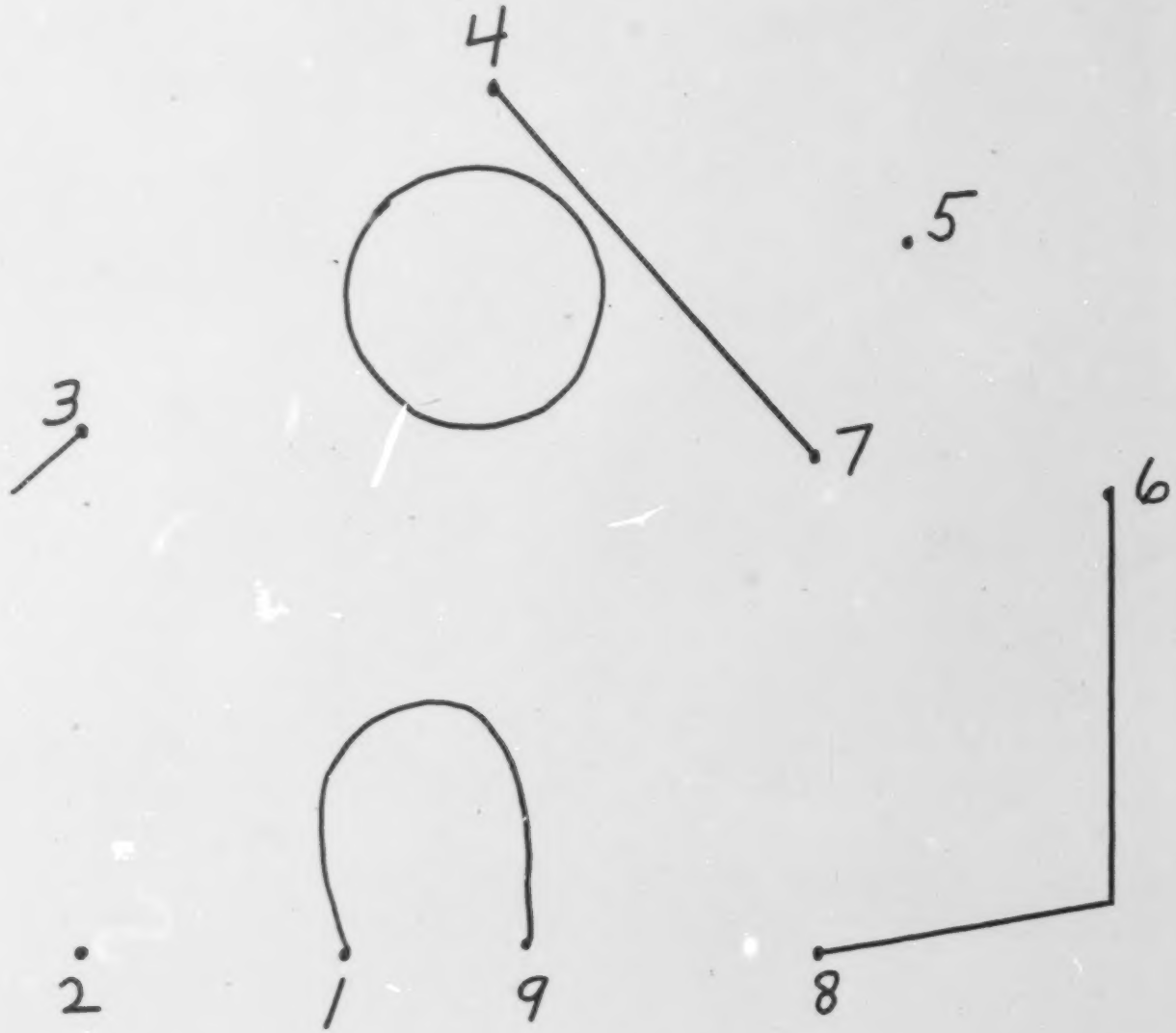
Sample #2



Use heavy cardboard or art board for the background. Length 28", width 7". Cut strips of oaktag (laminated) with a small window to expose figures on background. Insert strips in slits cut in top and bottom of backing. Strips may then be moved up and down to cover or expose numbers. Small cardboard stops should be glued on the backs of the strips to prevent them from being pulled out.

Sample #3


3
2.
.4
7
9
1.
8
6
.5



Sample No. 5

PRE-TEST FOR UNIT VIII

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numerals 0 and 10

TASK 1 - Show the student a card with a zero on it. Say: "What number is this?"

TASK 2 - Show the student a card with "10" on it. Say: "What number is this?"

TASK 3 - Place 3 pencils in front of the student. Say: "Here are 3 pencils." Remove the 3 pencils and say: "How many pencils are there now?" (Give credit if he answers, "None", "Zero", "There aren't any", or something similar).

TASK 4 - Place 10 cubes in front of the student. Say: "Count out loud the number of cubes there are on the table and tell me how many there are."

TASK 5 - Give the student a piece of paper and a black crayon. Say: "Write the number 10."

TASK 6 - Give the student a piece of paper and a black crayon. Say: "Make a zero on this piece of paper."

TASK 7 - Show the student a card with a "9" on it. Say: "What number comes after this one?"

TASK 8 - Show the student a card with a zero on it. Say: "What number comes after this one?"

TASK 9 - Place 12 crayons in front of the student. Hold up a card with a 10 on it and say: "Give me this many crayons."

TASK 10 - Scramble the flashcards from 0 through 10. Say: "Put these in order - start with zero."

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT VIII

OBJECTIVES

1. To state the numeral "10" when it is shown on a flashcard.
2. To state the numeral "0" when it is shown on a flashcard.
3. To write the numeral 10.
4. To count, in order, from 1 through 10.
5. To recognize the numeral 10 when it appears in random order with other numerals.
6. To select 10 objects from a group of 12 objects.
7. To put the numerals in order from 0 through 10.
8. To state the numeral which follows any numeral from 0 through 9.
9. To state "zero" when there are no objects remaining.

VOCABULARY:

ten zero

INSTRUCTIONAL PROCEDURE

UNIT VIII

INTRODUCTION

Up until this point, we have not mentioned "zero" in connection with learning the numbers from 1 through 9. In this series of activities, zero is introduced, as well as the numeral 10.

ACTIVITY 1

Place 9 objects on the flannel board (a set of pigs, cows, or some object from the farm scene used in Unit II). Ask someone to count the objects and write the number on the chalkboard. Remove 1, and have someone count again. Continue by removing 1 or more at a time until there is only 1 object left; each time having someone write the number. Remove the one object and ask how many are now on the board. Some may answer, "None", or "Zero", or, "There aren't any." Ask someone to write the number that shows there are no animals left. If the class does not respond with the correct word, tell them that we call that number a "Zero." Mention that it also looks like the letter O, but when we count, we say "Zero."

Continue by asking for the number of tables, or boys, or girls in the class. Each time, ask someone to write the number on the board. At intervals, ask for the number of some object which is not in the room; such as, the number of street cars or lions. Be sure to have someone write the number on the board each time they answer.

ACTIVITY 2

Give each student a set of numerals similar to those in Unit VI, Sample #1. Include a 0 and a 9 in the group (See Sample #1 for copies of 0 and 9). Ask the class to arrange the numerals in order. Some students may not know where to place the 0. Emphasize the placement of the 0 by arranging a sample of numbers on a flannel board or chalk ledge, placing the 0 before the 1. Make certain that each student arranges the numerals correctly.

Tell the class you are going to put some objects on the flannel board. Place three objects on the board and ask everyone to count how many there are; then hold up the correct number. At some point, do not put anything on the board and then ask how many there are. Watch for those students who are holding up incorrect numerals and give help where needed. Continue this activity until most students are holding up the correct card each time.

ACTIVITY 3

Place 9 objects on the chalk ledge or on the work table where everyone can see them. Ask someone to count the objects and tell how many there are. Add one more object and again ask someone to count. If they know how to count to 10, ask if they can write a 10 on the chalkboard. Perhaps someone in the class will be able to do this.

Use the paper guide to assist the children in writing rows of 10's. There should not be too much difficulty with this exercise, since most students are able to make a 1 and a 0 quite easily.

ACTIVITY 4

This activity is designed to help the children count groups of objects and associate them with the proper numerical symbol.

Prepare a set of 11 oaktag cards, approximately 4" x 9", each one having a different number of objects. One card should be blank, while the others should display items such as the following, which may be glued onto the cards:

1. Nickel
2. Pennies
3. Buttons
4. Pipe cleaners bent into small circles
5. Foil squares
6. Felt triangles
7. Sandpaper squares
8. Corrugated paper cones (may make different colored ice cream from construction paper)
9. Large sequins or other fancy trim
10. Gummed stars

Other items may be substituted, if desired.

There are different ways these cards may be used to reinforce the understanding of the meaning of the number symbols. One way is to give one of the cards to a student and ask him to state the number of objects on the card, then write the number on the chalkboard. Another activity might be conducted by giving each student a set of numerals displayed in order on the desk. Hold up one of the cards and ask the students to find the correct number from their set. When the card with 10 objects is displayed, the students should be able to pick out the 1 and the 0 and place them in the proper order on their desks.

It is important to have the children verbalize their responses in such a way that it becomes evident that they understand the concept of associating numbers of objects with the numerical symbol. Encourage them to say: "There are 2 pennies. This is the number 2" -- or something similar.

Other variations of this activity should be used as needed.

ACTIVITY 5

A large set of Indians and teepees is used for this lesson. The items may be flannel-backed in order to adhere to the felt board, or a small piece of masking tape may be attached to the backs of the pictures and placed on the chalkboard (See Sample #2).

Place the numbered sets of Indians and teepees on the board in random order. Tell the class that the Indians could never find their own teepee because they all looked alike. So, one day the chief put a number on the teepees and gave the Indians a number, also. Now, each Indian knows just where he lives.

Ask someone to come up and take one of the Indians, say the number and find the right teepee for him. Next, give each of the students an Indian. Tell them that when their number is called, they are to bring their Indian to the board and put him beside the right teepee. To close the Activity, ask several students to put the Indians and teepees in order from 1 through 10.

ACTIVITY 6

Give each student a set of small Indians and teepees (See Sample #3). Have a race to determine who can match all the numbers first (a small reward may be given to the winner, if desired).

Remove one set of Indians and teepees from each of the students' group. Do not let them see which set has been taken. Tell them they must find out which Indian and teepee is missing and write the number on a piece of paper. Do not give any instructions on how to do this. If it becomes apparent that some are experiencing difficulty with this task, start them off by arranging one or two sets in numerical order.

ACTIVITY 7

Write a few sets of numbers on the board with some of the numbers missing. Ask someone to fill in the missing number. (Example: 4____6; ____1 2). The student should say the numbers out loud. Continue at least as long as necessary so that each student has had the opportunity to try.

Prepare a ditto of an arrangement of numbers with some of the numbers missing (See Sample #4). Ask the class to fill in the missing numbers.

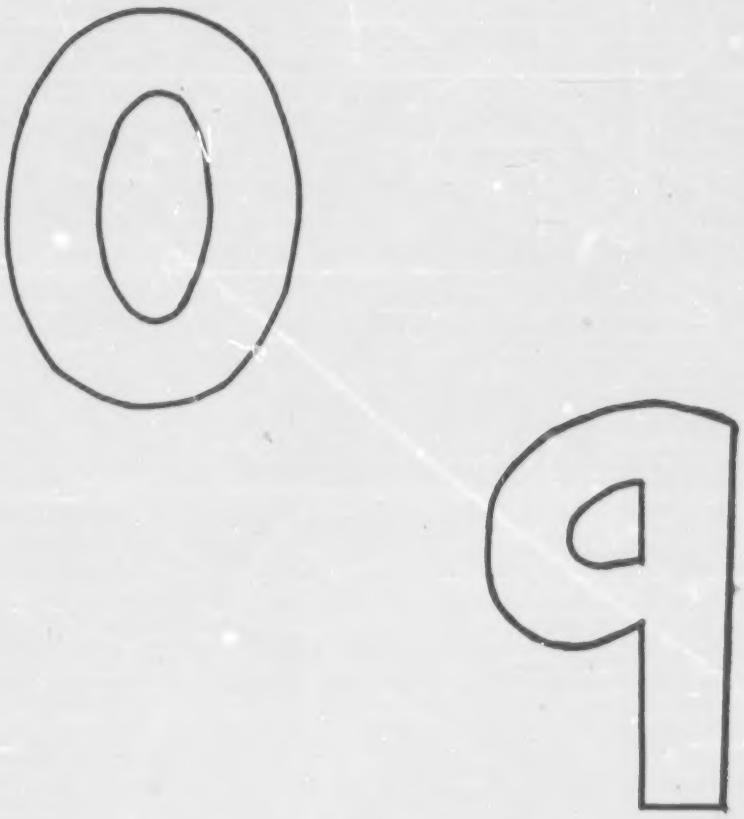
Use the sliding number board (See Sample #3, Unit VII). Expose two numbers with the middle number covered. Let someone tell the missing number and pull the tab to see if he is correct.

COMPETENCY MEASURE

(To be administered individually)

The Numeral 10 and 0

TASK 1	(Objective 1)	Write the numeral 10 on the board. Ask: "What is this number?"
TASK 2	(Objective 2)	Show the student a flashcard with a zero. Say: "What number is this?" If the student answers with the letter O, tell him that it is an O, but it also has a number name. He should answer "zero" to be counted correct.
TASK 3	(Objective 3)	Give the student a piece of paper and a black crayon. Say: "Write the number 10."
TASK 4	(Objective 4)	Give the student ten small cubes. Say: "Count out loud the number of cubes you have."
TASK 5	(Objective 5)	Randomly arrange flashcards from 0 through 10 in front of the student. Say: "Show me the 10."
TASK 6	(Objective 6)	Place 12 pennies in front of the student. Say: "Give me 10 pennies."
TASK 7	(Objective 7)	Scramble a set of flashcards from 0 through 10. Say: "Put these in order."
TASK 8	(Objective 8)	Show the student a flashcard with a 9 on it. Say: "Which number comes next?"
TASK 9	(Objective 8)	Show the student a card with a zero. Say: "What number comes next?"
TASK 10	(Objective 9)	Place 3 crayons on the table. Say: "Here are 3 crayons. I am going to put them in my hand. Now, how many are left on the table?" Give credit if the student says: "None" or "Zero."



Sample #1

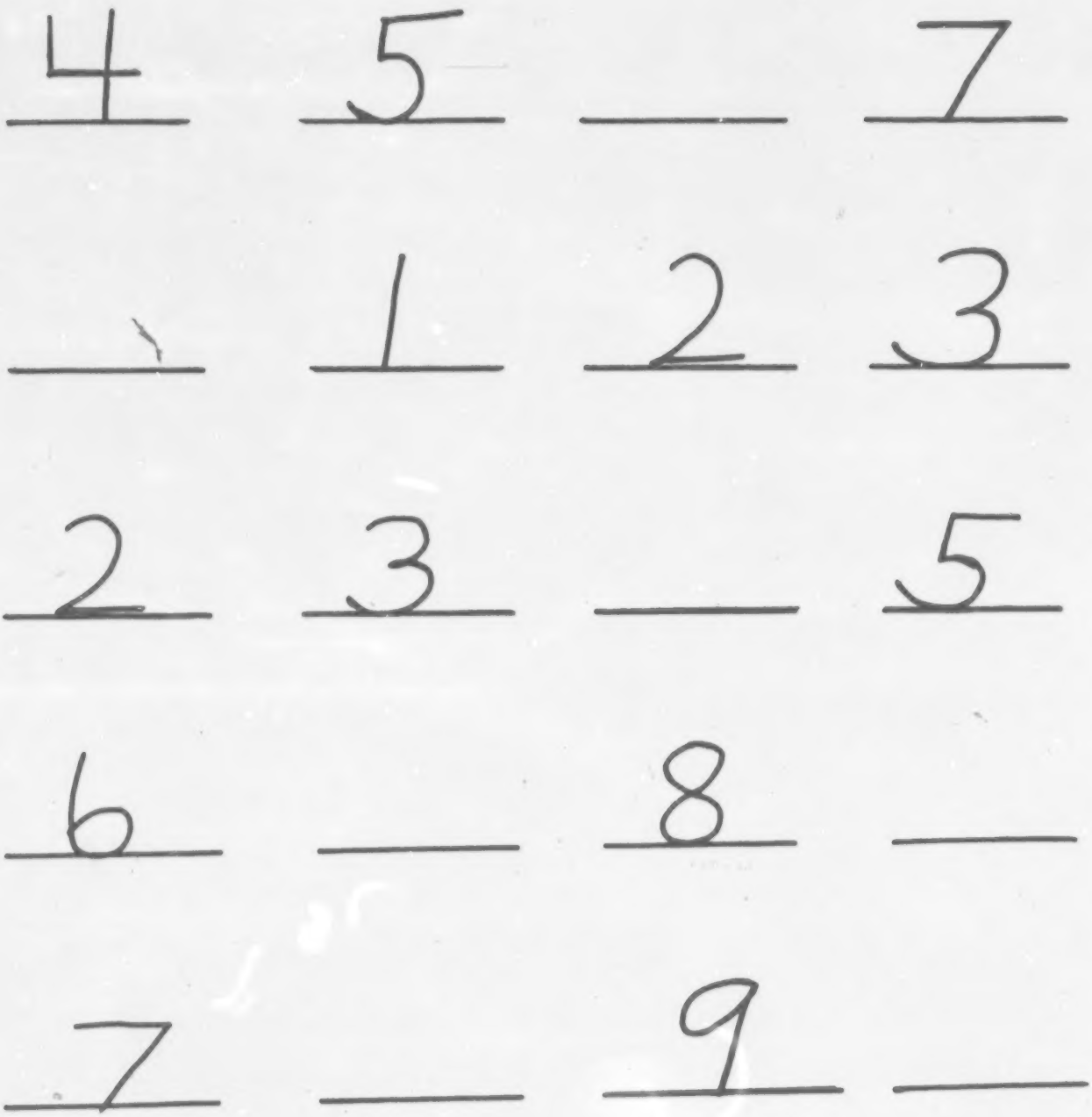
MAKE A SET OF 10 INDIANS AND 10 TEEPEES.

NUMBER EACH ONE FROM 1 THROUGH 10.

-87-

Sample #2

MAKE A SET OF 10 INDIANS AND 10 TEEPEES FOR EACH STUDENT. NUMBER EACH ONE FROM 1 THROUGH 10.



Sample #4

PRE-TEST FOR UNIT IX

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 11

TASK 1 - Display a set of cards from 0 through 11, in random order. Ask the student to show you an 11.

TASK 2 - Ask the student to count, in order, from 0 through 11.

TASK 3 - Show the student a flashcard with the numeral 10. Say: "What number comes next?"

TASK 4 - Place a set of 12 cubes on the table. Say: "Give me 11 of these cubes."

TASK 5 - Give the student a set of flashcards from 0 through 11. Say: "Put these in order."

TASK 6 - Give the student a piece of paper and say: "Write the numeral 11."

TASK 7 - Show the student a card with a 4 on it. Say: "What comes next?"

TASK 8 - Show the student a card with the numeral 0. Say: "What comes next?"

A PROCESS APPROACH TO LEARNING ARITHMETIC

UNIT IX

OBJECTIVES

1. To state the numeral 11 when it is shown on a flashcard.
2. To state that the numeral 11 follows the numeral 10.
3. To place, in order, the numerals from 0 through 11.
4. To state any numeral which follows a given numeral.
5. To count, in order, from 0 through 11.
6. To select 11 objects from a group of 12 objects.
7. To write the numeral 11.

VOCABULARY:

eleven

INSTRUCTIONAL PROCEDURE

UNIT IX

INTRODUCTION

In addition to being a difficult word for children to say, the concept of the numeral "11" is complicated by the fact that when we reach that number, we have run out of fingers to help with the counting. The activities in this unit are designed to cross the bridge from 10 to 11, and subsequently to 12. It is extremely important to continually review the numbers taught in previous lessons. Some of the activities in this unit are designed for such a review; however, additional reinforcement through the use of previously introduced instructional devices should be presented where necessary.

ACTIVITY 1

Make a set of "finger covers" by cutting pieces of light-colored felt or flannel 3" long and 1-1/4" wide. With a felt marker, number each strip from 1 through 10. Staple the edges together to make a felt finger which will fit over each child's fingers. Draw a pair of hands on the chalkboard and tell the class they are going to play a game with their fingers. Begin with the little finger on the left hand, and mark a 1 on it. Ask the class what number the next finger will be and have someone write a "2" on it. Continue until all fingers on the chalkboard hands have been numbered.

Give each child a set of numbered felt fingers and tell him to put one on each finger to match the numbered hands on the board. When they have their fingers on, ask them to take off the finger that comes after 6. Continue until all covers are removed. Erase the numbers from the hands on the board, and put the number 4 on the proper finger. Tell the class to put the number 4 cover on their finger that matches the one on the board. Proceed with this activity, placing the numbers in random order on the board drawing and asking the children to duplicate it on their hands with the felt fingers.

Variations of this activity may be used if additional reinforcement is necessary. One activity which should be tried is to have the class place all the covers on the proper fingers without using the board drawings to help them.

ACTIVITY 2

Place 10 animals (pigs, ducks or some other group) on the flannel board. Ask someone to count them out loud while pointing to each one. Ask the class if they can show the class 10 of some-

ACTIVITY 2 (Continued)

thing else that they carry around with them. Someone may suggest their fingers or their toes. Tell the class to count out loud their fingers, holding up each one as they count.

Place 1 more object on the flannel board and ask someone to count the number of objects out loud. After he reaches 10, give him the opportunity to say 11. If he does not, ask the rest of the class if they know the next number. Try to elicit the number from some member of the class.

Then, ask someone to write "11" on the board. Emphasize that "eleven" is just two 1's placed side-by-side.

Use a set of flashcards from 0 to 11. Place them in a box or bag and let each student have a turn drawing a number from the box and saying it out loud. He should place it on the chalk ledge. The next child who draws a number should say it out loud, and then place it to the right or left of the other number, depending on its proper order. Continue until all the numbers are drawn and they are placed in order.

Let one student draw a number from the box (remove the card with the 11 on it). Ask another student what number comes next. Whoever answers correctly may draw the next number. Continue until all numbers have been used.

ACTIVITY 3

Give the students a worksheet (See Sample #1). They should fill in the missing numbers as directed.

Refer to Sample #2. Read each question to the class and ask them to write the correct answer on a piece of paper. Use squares of paper--one square for each answer. Check each child's response after each question. They should correct their answers if they are wrong. This exercise should test their ability to recall and write the correct number to questions which require a "number" answer.

ACTIVITY 4

Prepare 11 small boxes or paper bags, plainly numbered from 1 through 11. Place a few small trinkets, pieces of wrapped candy or lollipops in each bag. Tell the children they are going to play a game called, "What comes after?" If they find the bag with the correct number, they will be allowed to have one of the prizes in the bag.

Place the bags in random order and say: "Find the bag with the number that comes after 4." Proceed with this activity until each member of the class has had a chance to answer. Those who answer incorrectly should be given as many opportunities as possible to answer with the correct number and receive a prize.

ACTIVITY 4 (Continued)

Use the number board developed in Unit VIII to reinforce "what comes after."

ACTIVITY 5

Following is an activity designed to reinforce consecutive counting. Reproduce Samples 3, 4, 5 and 6 on a transparency, project them on the chalkboard and do them as a class exercise first. Then, give each student a paper copied from the Samples. They should be instructed to follow the numbered dots from 1 through 11, using a black crayon. The students should be able to name the shape they have drawn, provided they have drawn it correctly.

ACTIVITY 6

Give each student a piece of paper divided into 12 blocks, using both sides of the paper (6 blocks on each side). Show them where to begin writing on their paper by pointing to the block in the upper-left corner. Tell the class you are going to ask them to write different numbers in the blocks. Randomly call off all the numbers from 0 through 11, making certain each student places the number in the correct block. If he doesn't know one of the numbers, that block should be left vacant. Be sure the papers are identified with the child's name. Students who answered incorrectly or not at all should have extra practice writing the numbers they did not know.

ACTIVITY 7

Use the set of transparencies (See Set 7 Samples). Project each picture in random order (cover the part of the picture not being used). The class should count the objects on the transparency without touching the projection. Ask someone to write the number on the board. This exercise is designed to reinforce visual counting without hand contact on the objects.

Make dittos similar to the transparencies. Have each student place the correct number of the objects in the block.

COMPETENCY MEASURE

(To be administered individually)

The Numeral 11

TASK 1	(Objective 1)	Show the student a flashcard with the numeral 11. Say: "What is this number called?"
TASK 2	(Objective 2)	Show the student a flashcard with the numeral 10 and say: "What number comes next?"
TASK 3	(Objective 3)	Scatter a set of cards numbered from 0 through 11. Say: "Put these cards in order."
TASK 4	(Objective 4)	Show the student a card with a 9 on it. Say: "What number comes next?"
TASK 5	(Objective 4)	Show the student a card with a 4 on it. Say: "What comes next?"
TASK 6	(Objective 5)	Place 11 crayons on the table. Say: "Count the crayons."
TASK 7	(Objective 6)	Place 12 wooden or plastic beads or counters on the table. Say: "Give me 11 of these beads."
TASK 8	(Objective 7)	Give the student a piece of paper and say: "Write the numeral 11."

	1	
3		5
	7	
9		

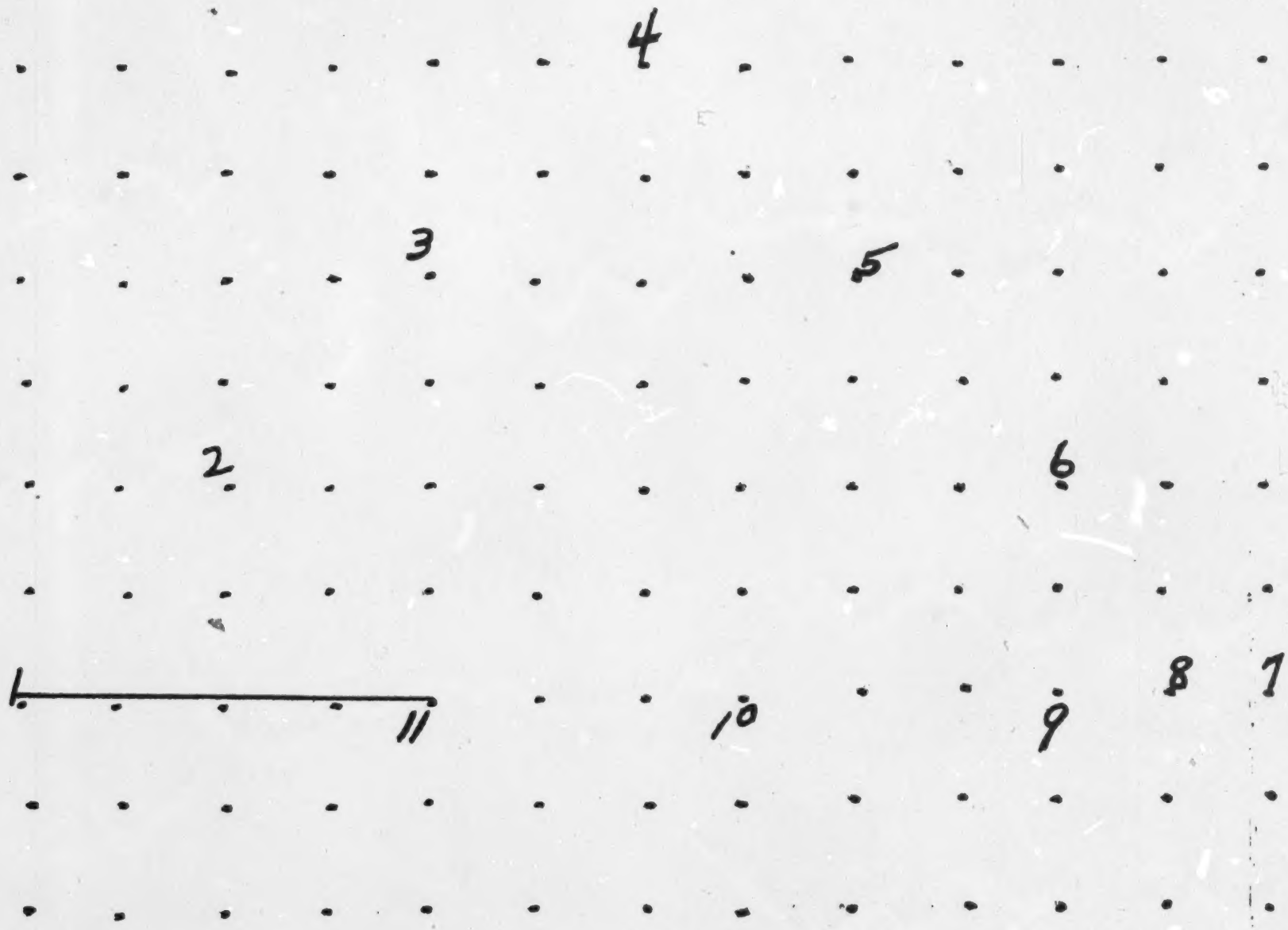
8396-

Sample No. 1

Read these questions to the class and have them write the correct number on their papers (they should not answer out loud).

1. Hold up your one hand. How many fingers are on it? Write the number on your paper.
2. Hold up both hands. How many fingers are on both hands?
3. How many elephants are in this room?
4. How old are you? (Answers will vary)
5. How many pennies are the same as a nickel?
6. How many noses do you have?
7. How many eyes do you have?
8. (Place 3 squares on the chalkboard). Say, "How many squares are here?"
9. How many toes do you have?
10. I am going to count to 10. Listen carefully. (Count to ten; then say: "Write the number that comes next".)

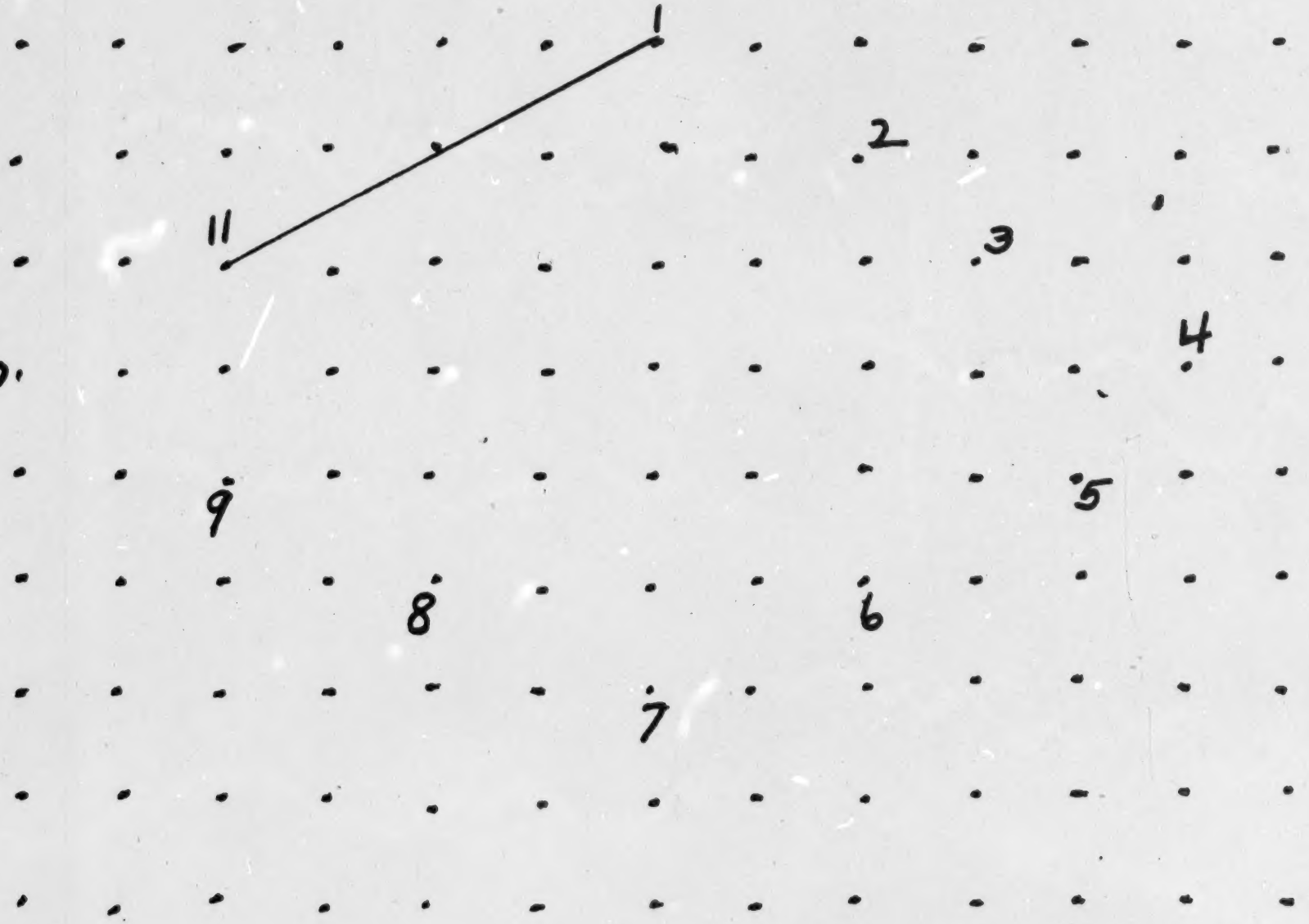
Sample #2



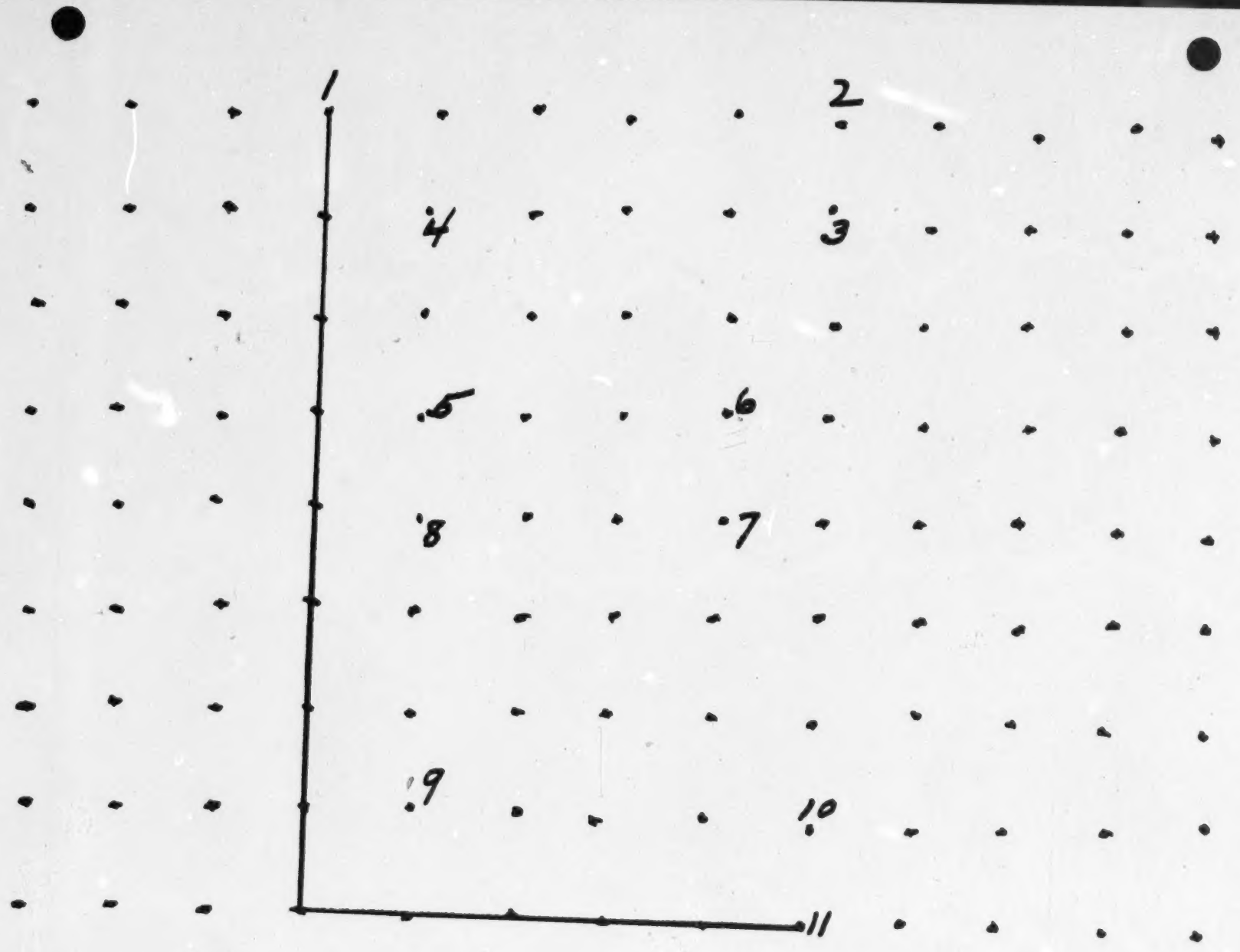
100

-98-

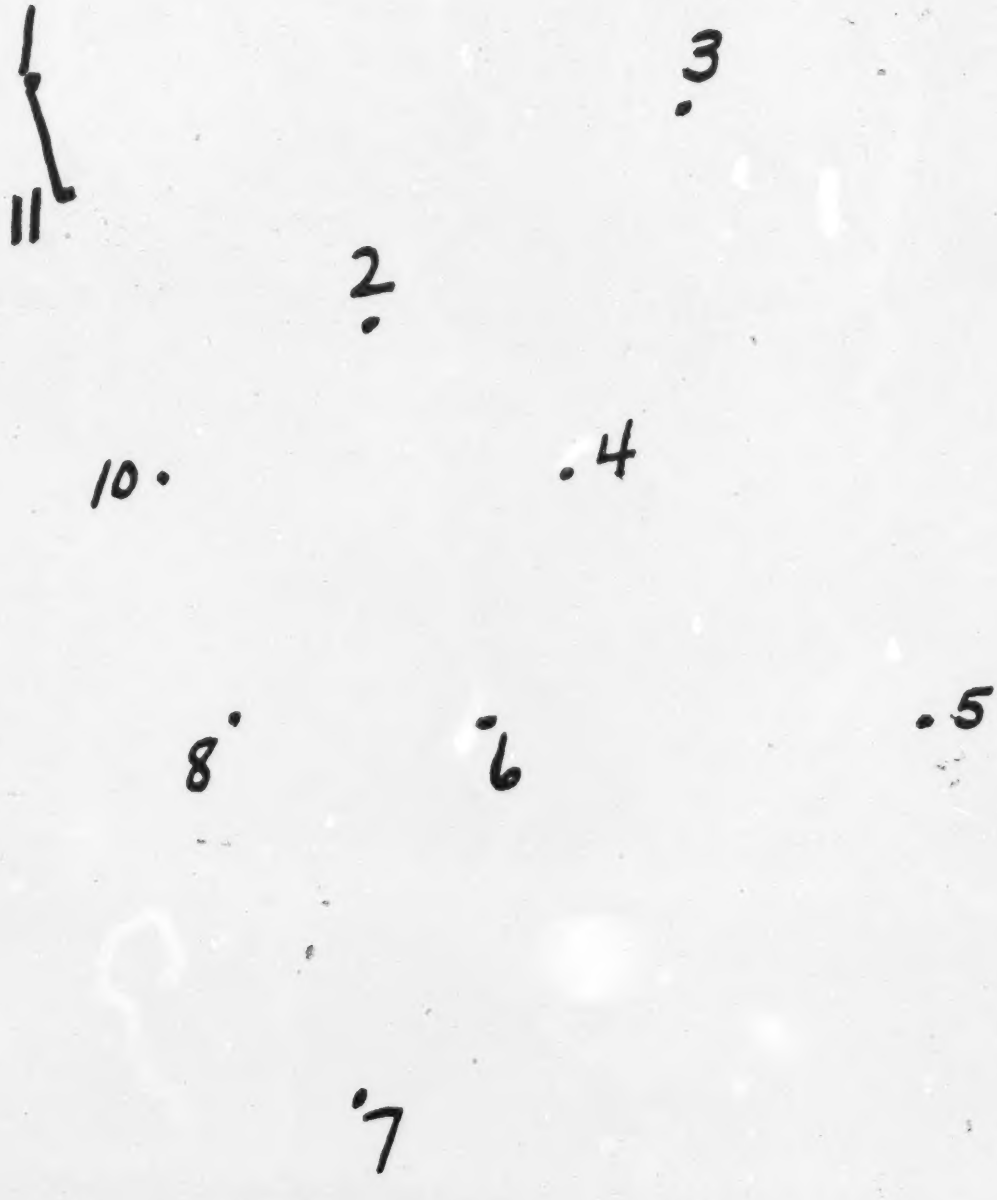
Sample #3



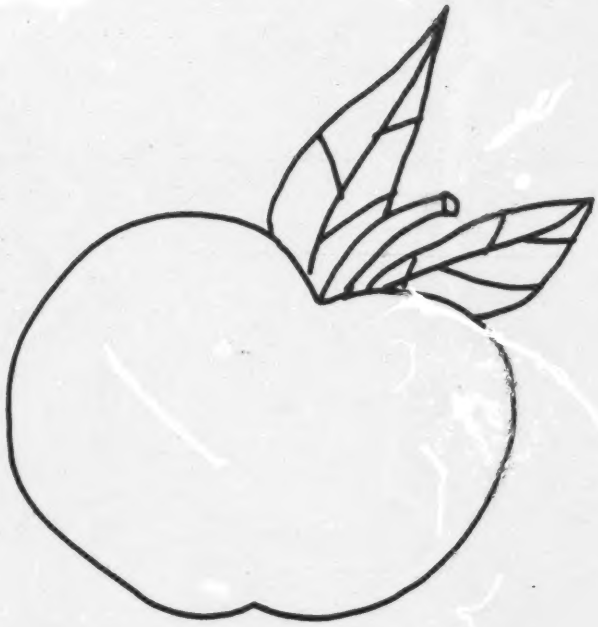
Sample #4

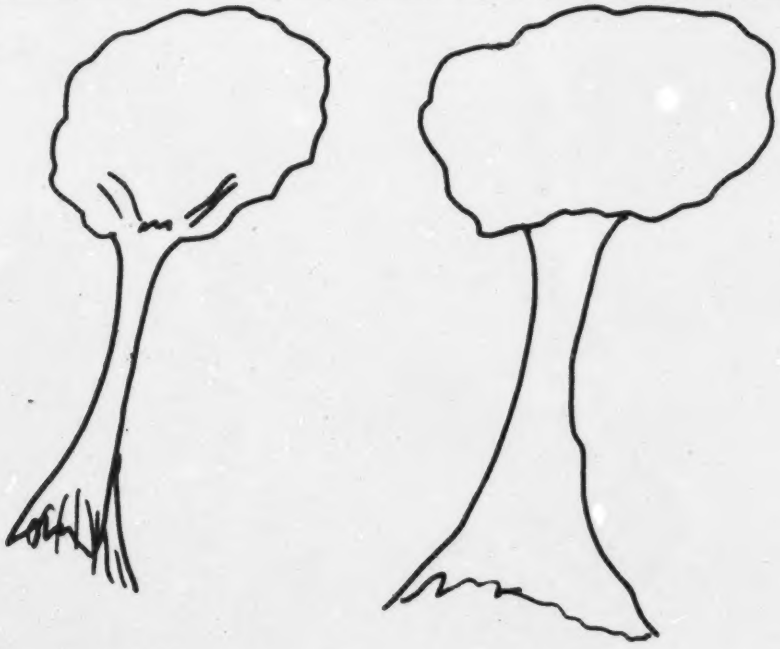


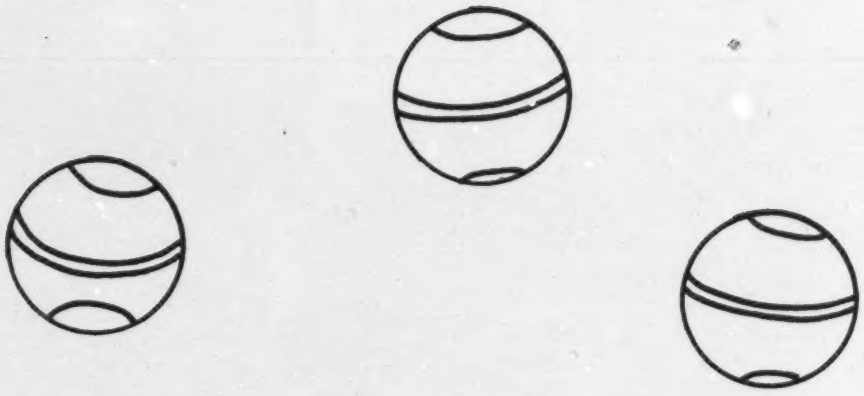
Sample #5



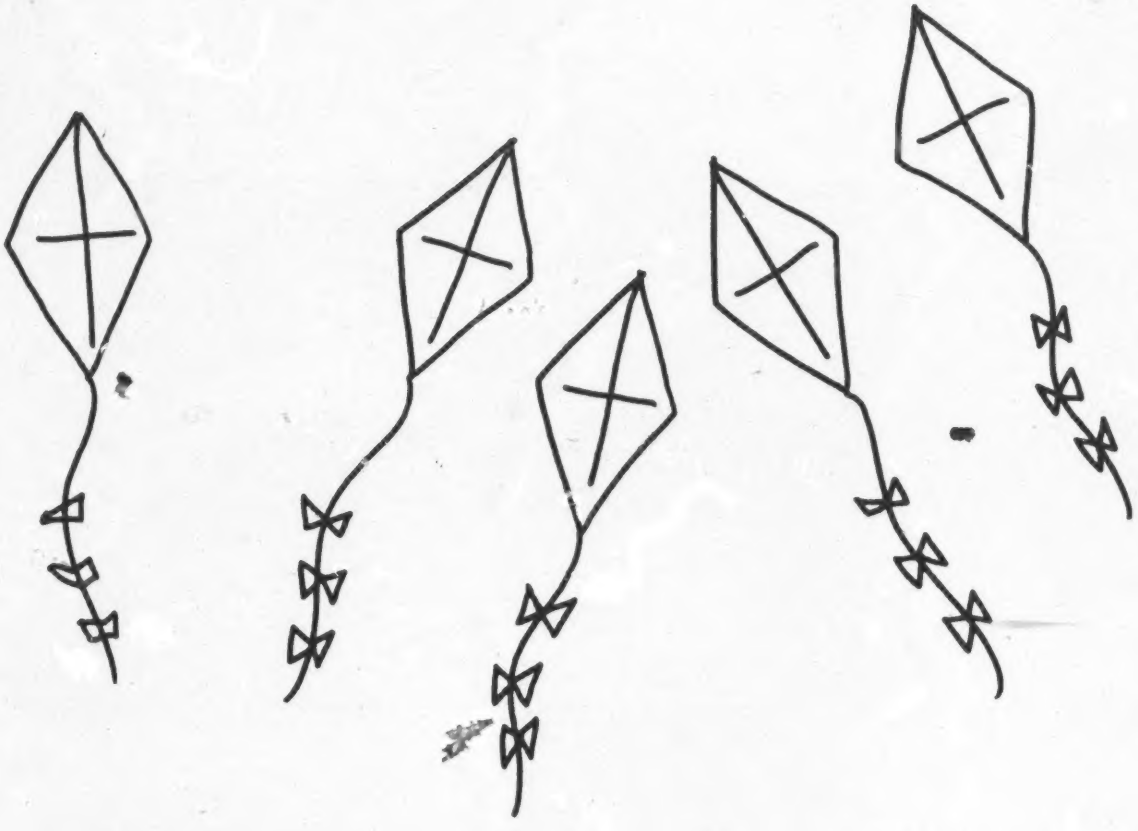
Sample #6

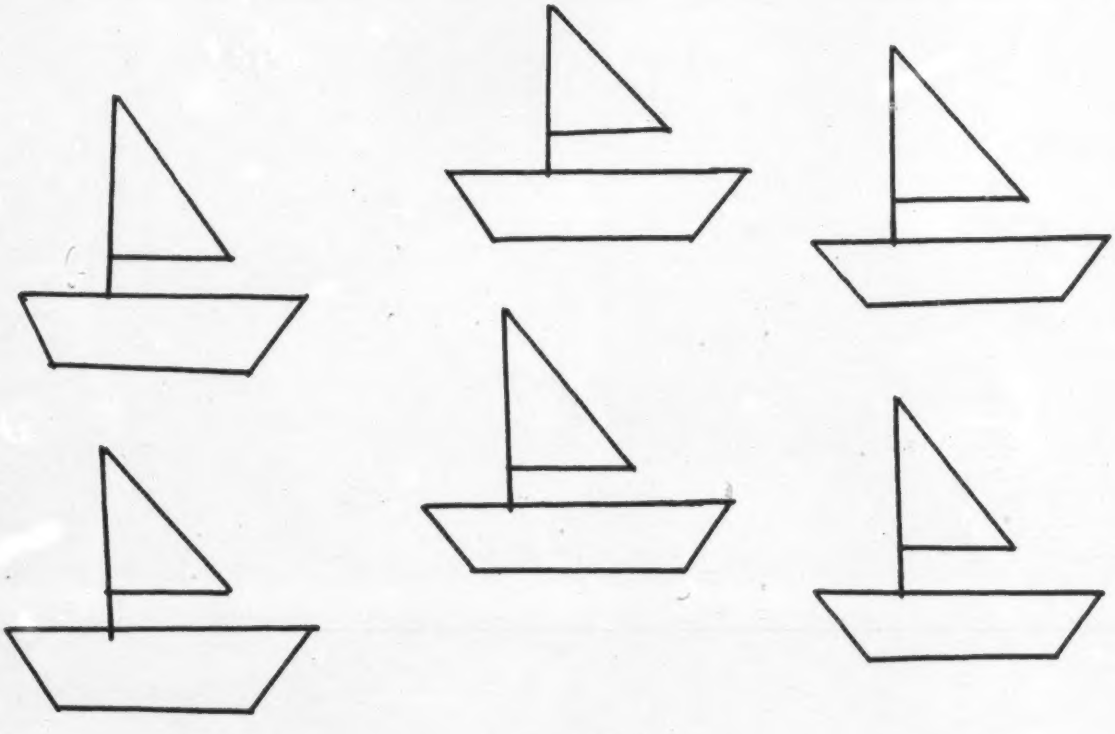


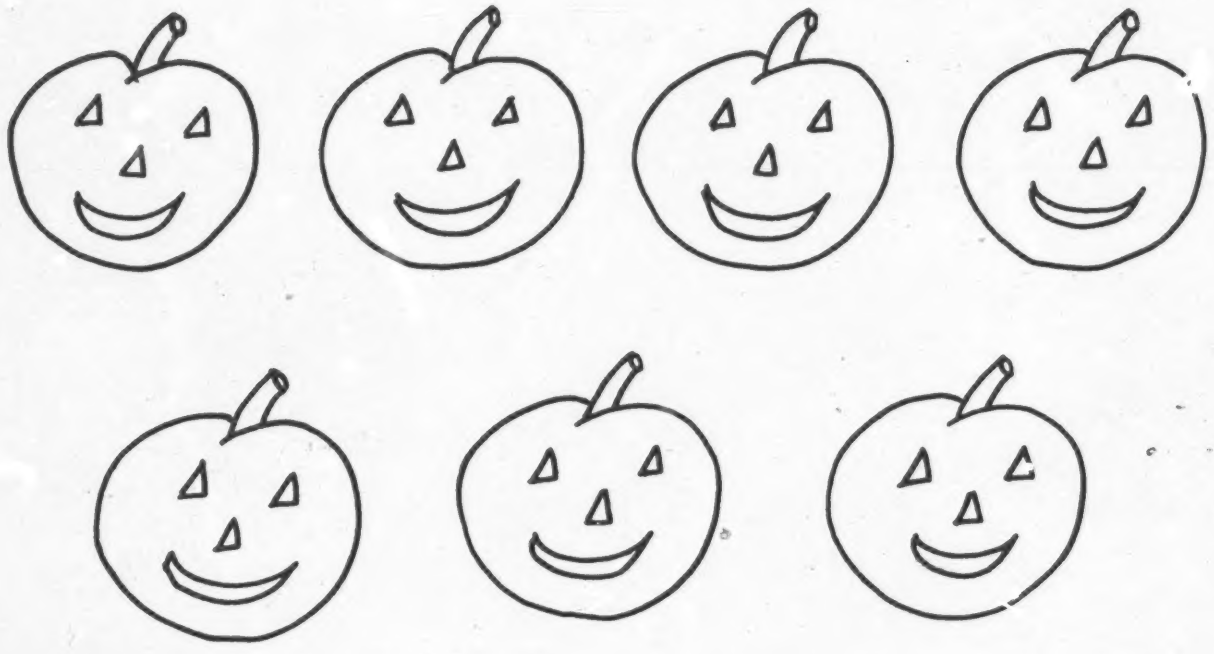


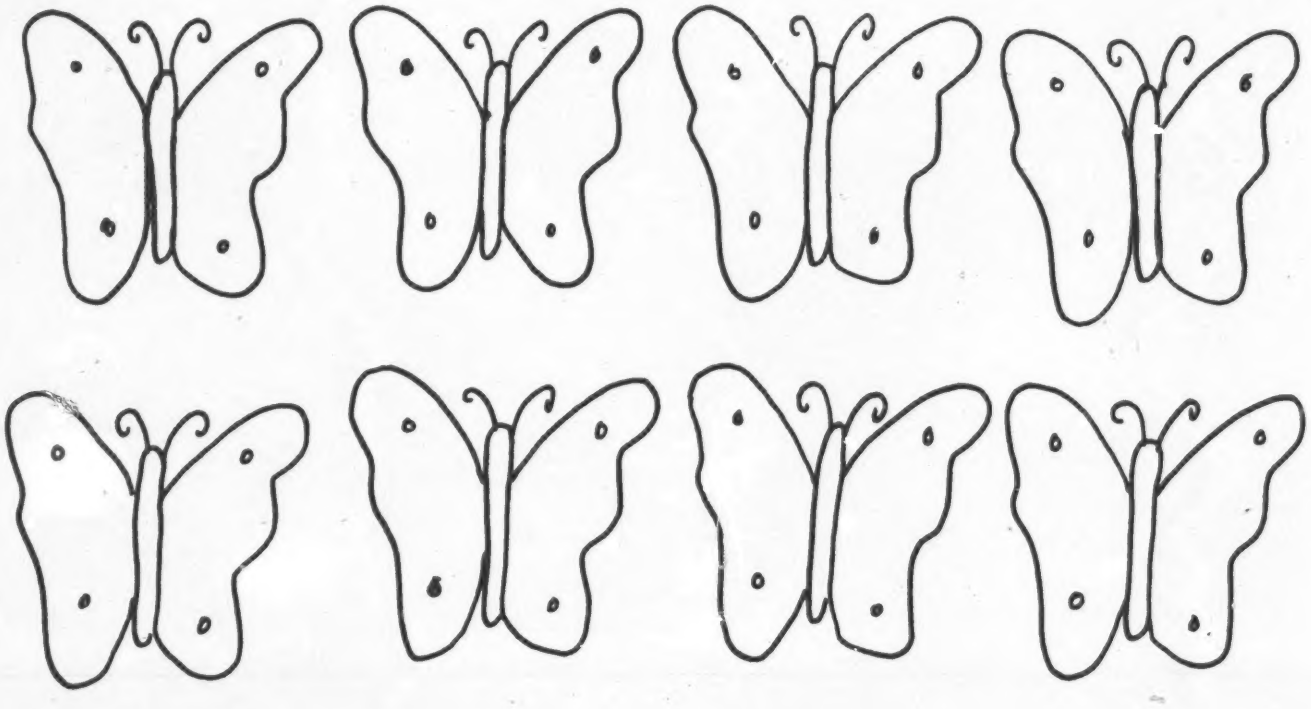


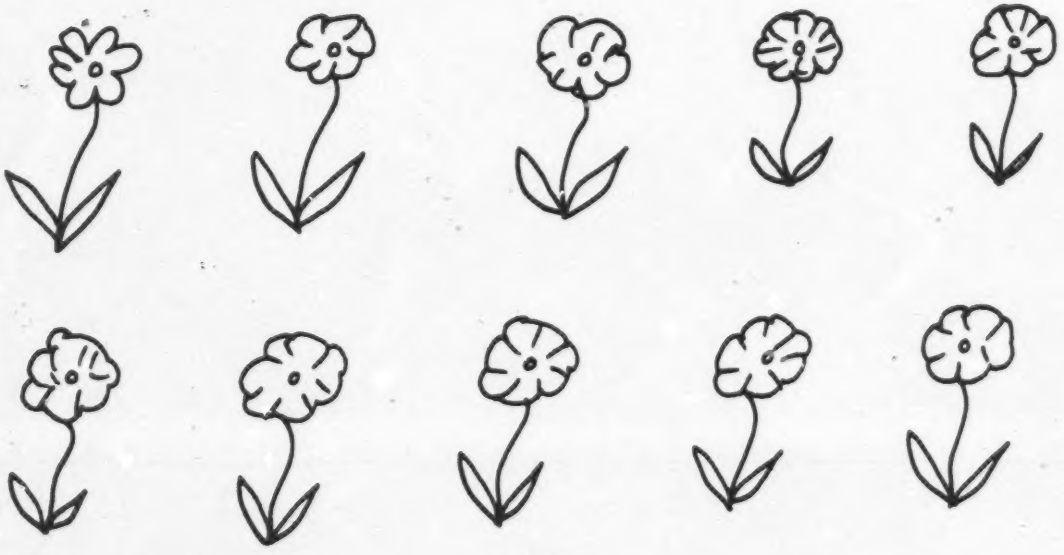
Sample No. 7











Sample No. 7

Sample No. 7

PRE-TEST FOR UNIT X

A PROCESS APPROACH TO LEARNING ARITHMETIC

(To be administered individually)

The Numeral 12

TASK 1 - Show the student a card with the numeral 12 on it. Say: "What number is this?"

TASK 2 - Show the student a ruler marked off in inches only. Say: "Show me an 11 on this ruler."

TASK 3 - Show the student a ruler and say: "Show me a 12 on this ruler."

TASK 4 - Arrange 5 cards, each with a different numbered animal on them in front of the student (See Sample #1). Say to the student: "Which animal is number 12?" (Give credit if he names or points to the animal)

TASK 5 - Ask the student to count, in order, from zero through 12.

TASK 6 - Give the student a piece of paper and say: "Write the number 12."

TASK 7 - Show the student a ruler and say: "How many inches are on this ruler?"

TASK 8 - Show the student a penny and say: "What is this called?" (Give credit if he says "penny" or "cent".)

TASK 9 - Show the student a nickel and say: "What is this called?" (Give credit if he says: "nickel" or "five cents".)

TASK 10 - Show the student a card with an 11 on it. Say: "What number comes next?"

UNIT X

OBJECTIVES

1. To state the numeral 12 when it is shown on a flashcard.
2. To write the numeral 12.
3. To identify a ruler and name the numbers as they appear on a ruler marked off in inches.
4. To identify objects which have been labeled with numbers by stating the name and number of the object.
5. To count, in order, from 0 through 12.
6. To identify an inch as a unit of measure.
7. To state the number which follows any given number from 0 to 11.
8. To identify a penny and a nickel.

VOCABULARY:

twelve ruler inch measure

UNIT X

INTRODUCTION

With the identification of the numeral 12, the students now have a basis for learning the rudiments of measuring with a ruler and also telling time. In this unit, the numeral 12 is introduced, along with rulers marked in inches only. In addition, the penny and nickel coins are reviewed, as well as all the numerals from 0 through 12.

ACTIVITY 1

Ask a student to write a zero on the chalkboard. Ask another student to write what comes next. Continue until all the numerals from 1 through 11 are written on the board. Ask the class what number comes after 11. If no one can answer, tell them that the number is called 12. Try to get someone in the class to write the 12. Guide their thinking by showing them a sequential diagram and saying: "We write a ten like this: 10." Then say: "We write an eleven like this: 11." (Place the numerals in a column like this:)

1 0
1 1
1 -

Call their attention to the fact that there is a "1" in front of each number. In the next row there is a zero, then a 1. Ask what number would be next. Let someone put a 2 in the proper place, and say: "twelve." Reinforce by having the class say all 3 numerals. Erase the numerals and ask someone to make a 10, then an 11 and a 12. Repeat, giving each student an opportunity to write the numbers, and say them out loud.

ACTIVITY 2

Make a set of 13 cards (about 7" x 7" square) with familiar objects on them, numbering each card from 0 through 12 (See Sample #1 for suggestions). Objects or animals cut from magazines may be used, if desired.

Place the cards, in order, on the chalk ledge or attach with magnetic tape to magnetic board. Give each student a set of 13 squares of paper and a black crayon. Randomly name one of the objects and ask the class to write its number on their first piece of paper. Check to see if everyone has done this correctly. Continue with this until each object has been named and the number written. Stop after each number and check to make certain everyone has written it correctly.

ACTIVITY 2 (Continued)

Have the class put their sets of numbers in order.

Reinforce this lesson by naming the numbers on the cards and asking someone to state the objects on those cards.

ACTIVITY 3

Prepare a transparency with various sets of objects (See Sample #2). Project the picture on the chalkboard or on a large sheet of paper. Ask a member of the class to place a green "X" on every tree he can find. Then, ask someone to count the trees and write the number on the board.

Continue with the other items on the drawing, using a different color for each item.

Ask someone to count the number of cows in the picture. They should determine there are none and put a 0 on the board.

Give the class a ditto of the drawing and give directions for completing it by calling off each item and directing the color to be used. When they are finished coloring, ask them to count the number of each.

(Note: the class period may not be long enough to complete both of these activities -- they may be spread over two periods, if desired).

Review the penny and nickel lesson by giving some students 5 pennies and others a nickel. Ask each student how much money he has. If he says: "5 pennies", ask him for another name for pennies. If he says: "5 cents", ask for another name for "5 cents." Do the same for those with a nickel. Have a display of items marked with "5¢" signs. Ask each student if he would be able to buy something with the money he has, and let him select one of the items and pay for it. He should verbalize the performance by stating that he has 5¢ (or 5 pennies) or a nickel (or 5 cents), and can buy something costing 5¢.

Place on the table a nickel and 7 pennies. Ask someone to count and say how much money they represent. Encourage them to start with the nickel and say: "5¢", then continue counting the pennies. Change the number of pennies, and give each student an opportunity to count, always beginning with "the nickel."

ACTIVITY 4

Give each student a piece of paper marked off in 2 inch squares. Turn the papers so there are 5 blocks horizontally arranged in 3 rows. Show the class in which block to write their first number, and tell them you are going to ask them to count some things and write the number on the paper. Use magnetic objects, if available, or objects cut from flannel. Begin by showing the class a blank flannel or magnetic board.

ACTIVITY 4 (Continued)

Say, "How many things are on the board -- write the number in the first block." Since this is not a test, give individual help where necessary. It would be well to have a duplicate drawing of the blocked-off paper on the board so the number may be filled in for the class to check with their own paper; however, the students should attempt writing the number first.

Place, in order, objects from 1 through 12 on the board, stopping after each one until the class has written the number on their paper. They should have the entire set of numbers written in order at the end of the lesson.

Give each student a ruler marked off in inches only. Give them an opportunity to examine their rulers. Ask if anyone knows what they are called. Have the class point to different numbers on the ruler as they are called off in random order.

Ask if anyone knows what rulers are used for. Probably none of the students will know that the length of measurement is an inch, but that question should also be asked.

Tell the class that sometimes we have to know how big things are, and we use a ruler to measure. Demonstrate by drawing a 12 inch line on the chalkboard. Ask how we would tell how long the line is. Let someone measure the line and state that it is 12 inches long.

Draw other lines in even inch lengths and show students how to read the correct length. One problem which may be encountered is trying to get the ruler properly placed on the line. A piece of cardboard taped to the left side of the board could serve as a "back-stop" for the end of the ruler. The drawn lines should extend from the side of the cardboard.

Give each student a strip of construction paper 1 inch wide and 5 inches long. Tape a duplicate piece of paper on the board and show the class how to measure it by placing the end of the ruler on the edge of the paper. Tell the class to do the same with their rulers and paper. Ask each child the length of the paper. Do not be too concerned with the students' lack of ability to perform this task. We are more interested in introducing them to the ruler and the numbers appearing on it than in their ability to measure accurately at this point.

Continue giving the class different sizes of paper and help them to measure the length and say the number of inches. They may write the number on the strip to give further practice in number writing.

When all twelve strips of paper have been measured, have the class put them in order, vertically, on their desk. If they do this correctly, they will see the progression in size. Call attention to the fact that 3 is bigger (more) than 2; 5 is more than 4, etc. If this lesson is too long for one class period, continue it during the next lesson.

ACTIVITY 5

Precede each activity with a quick review of the ruler. Ask how many inches are on a ruler and give each student an opportunity to measure a line which is in whole inches.

Prepare a small "Bingo" card for each student (See Sample #3). Each card should have a different arrangement of nine of the numbers from 0 through 12. Give each student some cubes or other objects to use as markers on the card. Explain that you are going to put a number on the board and if the number is on their card, they should cover it with their marker. The first one to cover all the numbers gets a seasonal sticker or star pasted on their paper. Continue the game until everyone has covered all their numbers at least once (even if you have to cheat!)

ACTIVITY 6

Make a ditto of Sample #4 and give each student a copy. Ask the class what they think the picture looks like. If someone says: "a ruler", ask what is missing. Tell the class they are going to fill in the numbers, but they will have to wait until they are told how to do it.

Ask them what the little marks are for. Try to get someone to say "inches." Show them how to count to 4 inches by counting four lines and writing a 4 on their paper. It would be helpful if a similar drawing were used on the chalkboard so the students would get a better idea of what they are to do. Continue by calling off numbers in any order and asking the class to put them under the proper line. Do not proceed with the next number until all the students have correctly located and written the preceding number.

This lesson may be reinforced by projecting on a transparency, a drawing of a ruler with the inches marked. Place a strip of paper against the ruler and ask the class to tell how many inches long it is. Continue with various size strips of paper.

ACTIVITY 7

Make a ditto of Sample #5. Give each student a box of crayons and tell them they are to color the balloons the way you tell them. Say: "Pick up your red crayon. Now find balloon Number 9 and color it red." Proceed by calling off the numbers and telling the class what color to use. You will have to repeat some of the colors, since there are 13 balloons. Pause after each direction to make certain everyone is doing the work correctly.

Give a review of the ruler, the penny and nickel by showing each of these items and asking their names.

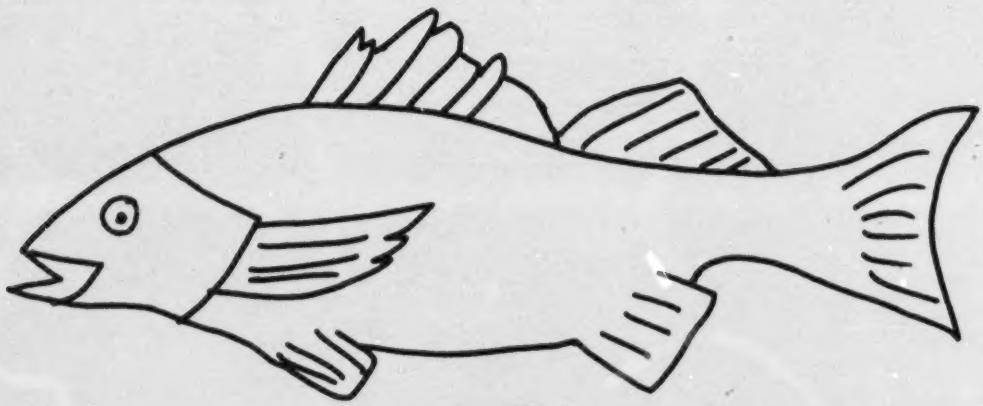
COMPETENCY MEASURE

(To be administered individually)

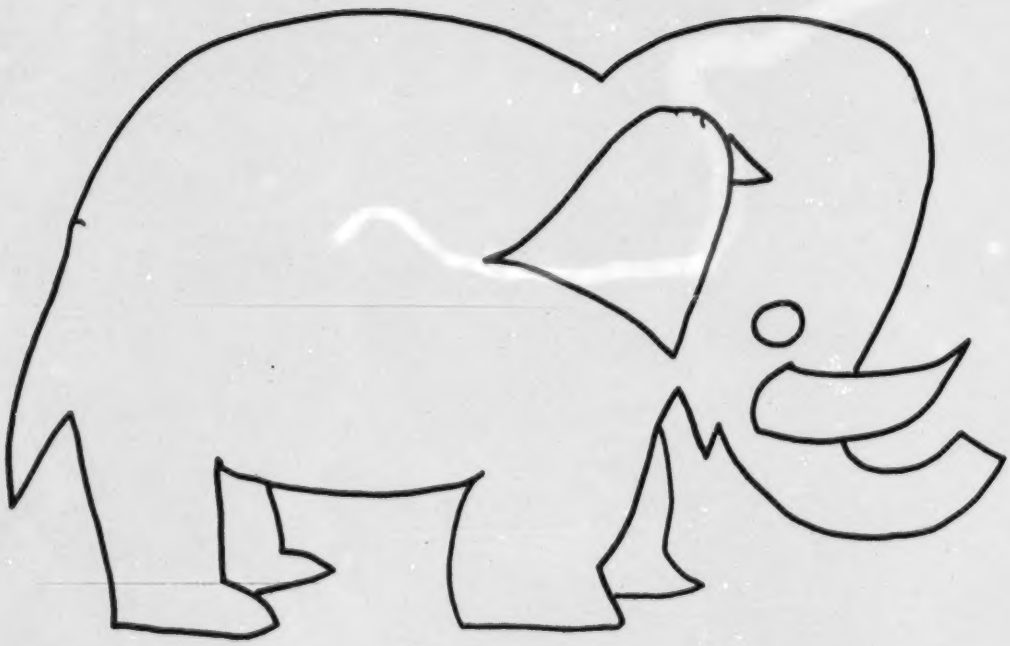
The Numeral 12

TASK 1	(Objective 1)	Write the numeral 12 on the chalkboard. Say: "What is this number?"
TASK 2	(Objective 2)	Give the student a piece of paper and a black crayon. Say: "Write the number 12."
TASK 3	(Objective 3)	Show the student a ruler marked off in inches. Say: "What is this called?"
TASK 4	(Objective 3)	Show the student a ruler - point to the 9. Say: "What is this number?"
TASK 5	(Objective 4)	Show the student a set of 5 cards (See Sample #6). Use the cards with the 3, 4, 7, 9 and 12 on them. Say: "What is the name of the picture on card 12?"
TASK 6	(Objective 4)	Show the same set of cards and say: "What number is the _____." (Name the picture on card 7)
TASK 7	(Objective 5)	Say: "Count up to 12 -- start with zero."
TASK 8	(Objective 6)	Show the student a ruler and say: "Here is a ruler. It is marked off in lines and numbers. What is each line called?" Give credit if the student answers: "inch" or "inches."
TASK 9	(Objective 7)	Say: "I'm going to say a number -- tell me what number comes next -- eleven."
TASK 10	(Objective 8)	Show the student a penny and a nickel. Say: "What are these called?" Give credit if he says: "penny", "cent", "nickel" or "five cents". He must name both coins correctly to receive credit.

Sample No. 1

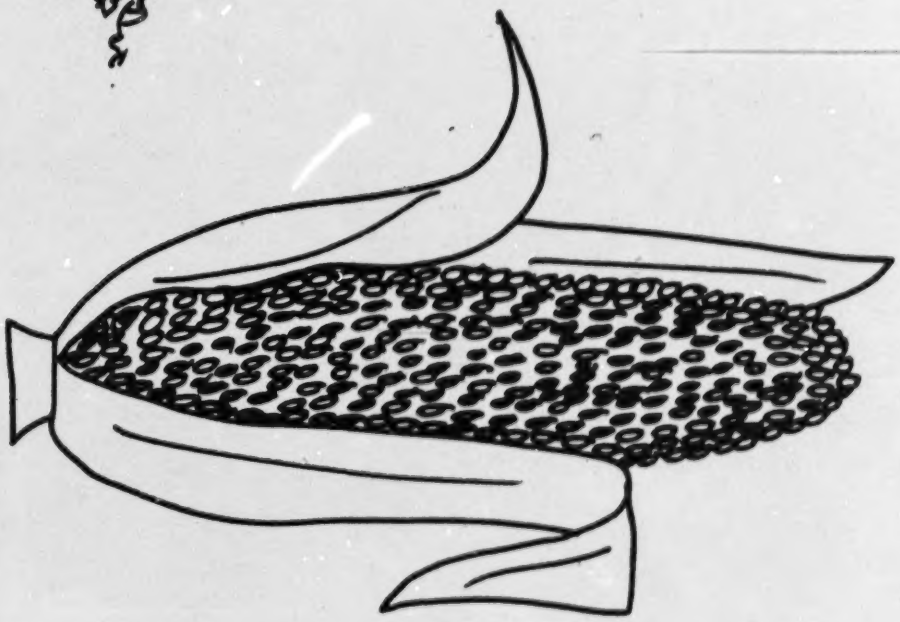


2

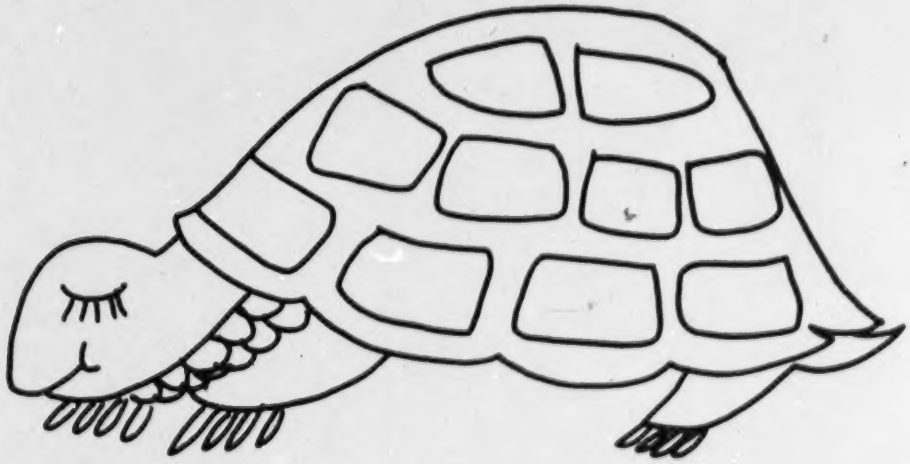


3

4



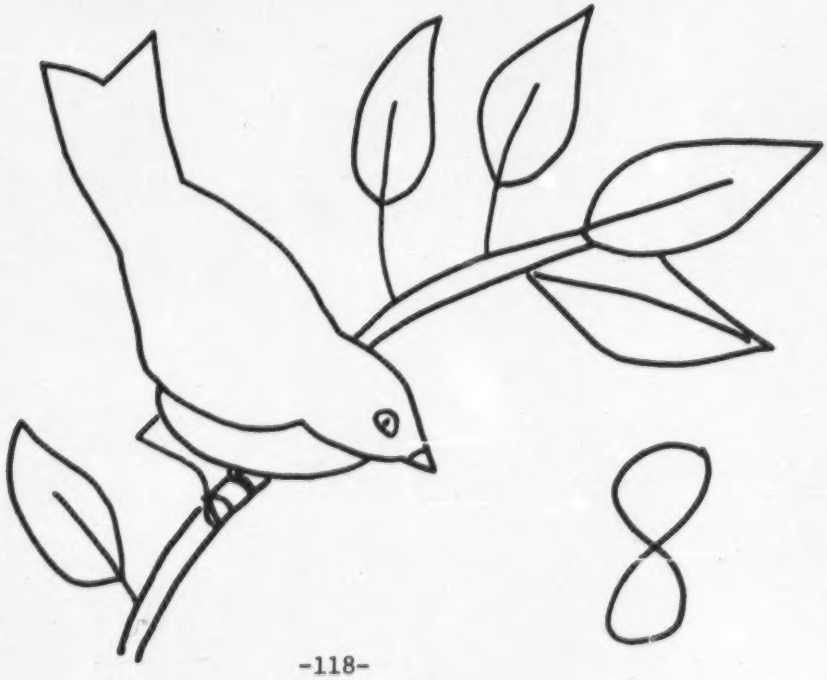
5



6

Sample No. 1

7



8

Sample No. 1

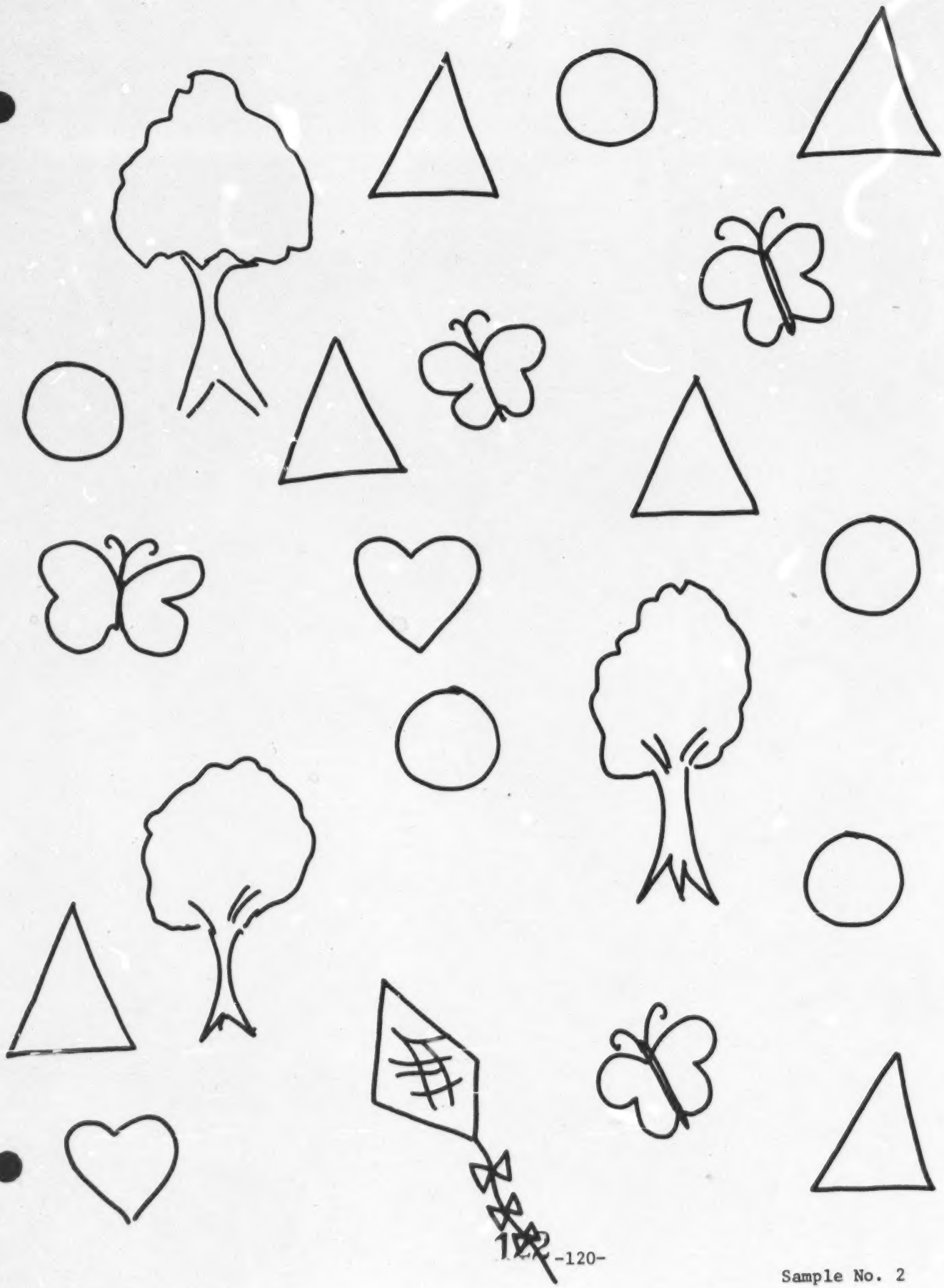
9

10

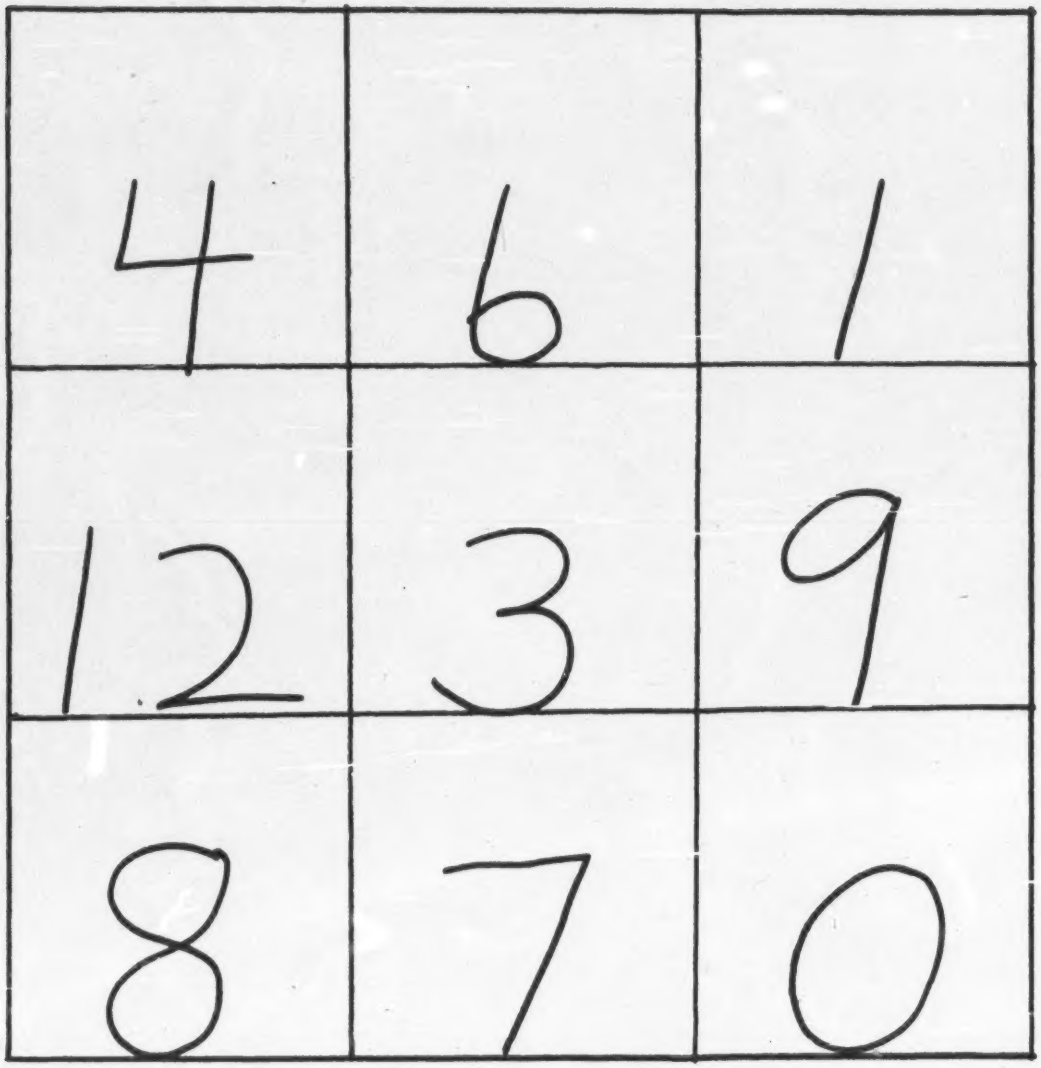
11

12

Sample No. 1

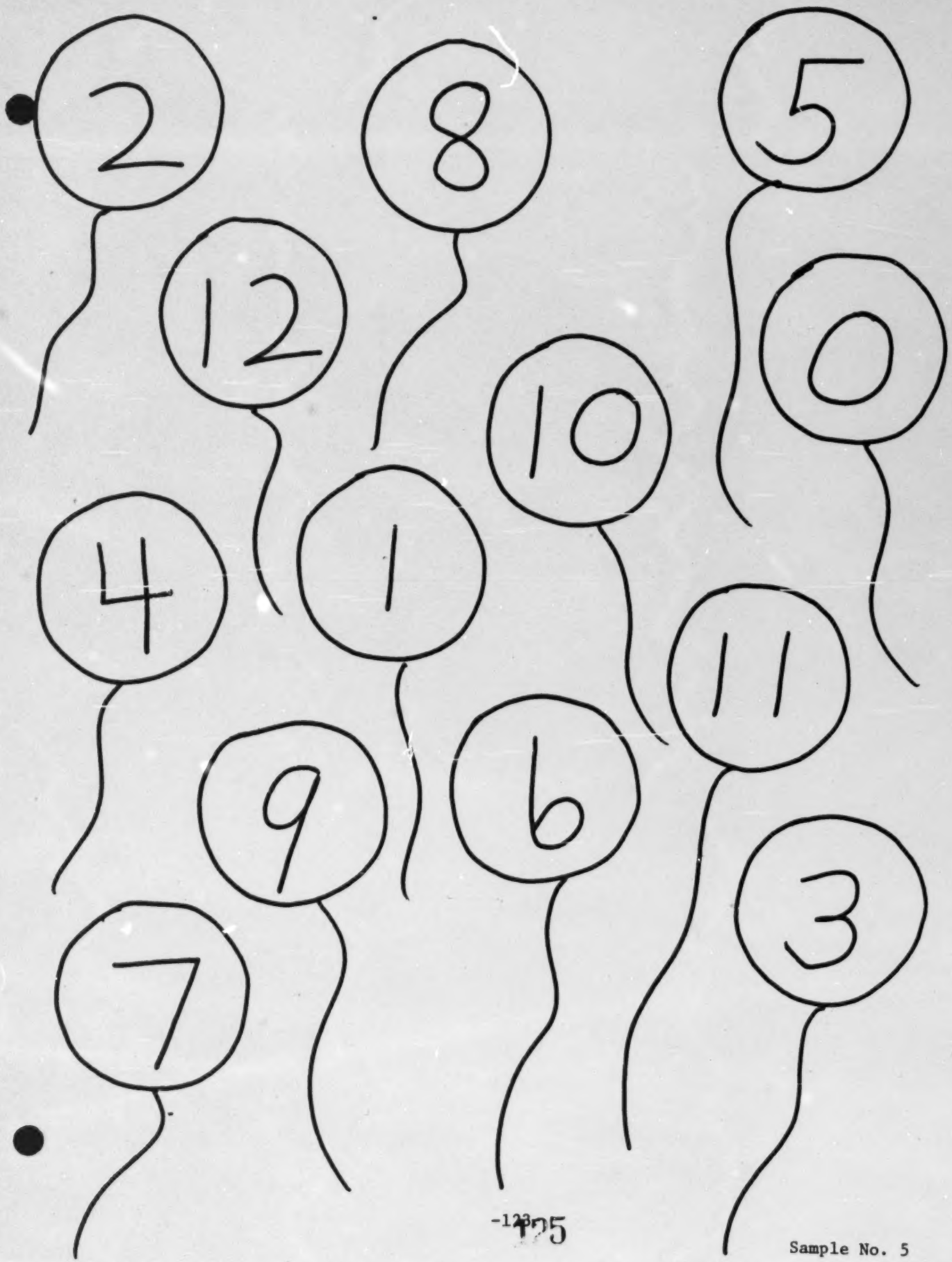


Sample No. 2



Sample No. 3

Sample No. 4



Sample No. 5

3

4

7

9

12

Sample No. 6